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ALASKA'S ECONOMIC LINKS:

A MULTI-REGIONAL ANALYSIS

ALASKA'S ECONOMIC LINKS

A Multi-Regional Analysis

Commissioned by

THE NORTH SLOPE BOROUGH

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EXECUTIVE SUMMARY

Purpose of the Study

Among American cities that are the largest metro areas in their respective states, Anchorage has perhaps the closest economic links to outlying areas of its home state. To an unusual degree it serves as the headquarters for industries that make a dominant contribution to the state economy yet are located elsewhere in Alaska. Because these industries are resource-based, Anchorage derives a crucial portion of its economic health from natural resource activities statewide.

Over half the trade receipts and two-thirds of the services receipts in the State of Alaska flow through Anchorage-based businesses. Most banks, and many transportation and construction companies, are headquartered in Anchorage. Many Alaska native regional corporations have offices and staff in Anchorage. For the city's hospitality and retailing industries, a major source of business is travel by Alaska residents to Anchorage.

This study seeks to document the linkages and interdependencies of Alaska's economic components. It clarifies the effect that resource industries, based in the rural areas of Alaska, have on the vitality of the urban core of Anchorage.

Highlights of Major Findings

- The economy of Anchorage receives enormous stimulus from the rest of Alaska. Anchorage, the State's economic core, exports one-third of its output of goods and services, and over 60 percent of these exports are destined for other regions of Alaska.
- Of the \$16.9 billion in total 1996 output from the Anchorage/Mat-Su core region, \$3.4 billion - over 20 percent - were goods and services purchased by rural and other peripheral areas of Alaska.
- In 1996, over 25,000 jobs in the Anchorage/Mat-Su core region were due directly or indirectly to trade with the rest of Alaska. This exceeded the region's combined number of federal civilian and military jobs, and was also more than the total number of state and local government jobs.
- The ratio of Anchorage/Mat-Su jobs created by 1996 trade with the rest of Alaska was greater than one in seven. The \$833 million paid to these workers exceeded the earnings of all retail trade employees in the region and was almost as large as the total for service sector employment.

- 100 percent of Anchorage/Mat-Su construction exports, 90% of health services exports; 88% of wholesale trade exports; 86% of finance, insurance, and real estate exports; and 69% of business services exports were purchased by the rest of Alaska.
- Anchorage/Mat-Su construction companies made almost 50% of their total sales to buyers located elsewhere in Alaska. For firms in engineering, legal services, and wholesale trade the comparable figure was over one-third. The periphery accounted for over 60 percent of total exports and one-eighth of total sales in retail trade.
- Trade between Anchorage/Mat-Su and the rest of Alaska strongly favors the core region. Its \$3.4 billion in exports to the periphery is more than three times the reverse flow of \$989 million. The periphery exports over half its total output, an unusually high proportion. But only 4 percent is destined for Anchorage/Mat-Su, while 28 percent of the periphery's imports come from the core region.
- Alaska's economy is heavily natural resource based. In 1996, resource industries contributed \$15.5 billion share to the state's \$25.85 billion total output, a 60 percent share. Activity in oil and gas, minerals, fisheries and seafood processing accounted for nearly 90 percent of the resource total and is based almost 100 percent outside Anchorage/Mat-Su.
- A major benefit statewide is the Alaska Permanent Fund. Supported by oil revenues, it creates an estimated 8.5 full-time jobs for each \$1 million paid to Alaskans. The 1996 dividend of \$643 million equated to 5,383 jobs. A significant portion of these jobs are in Anchorage as the center of medical, educational, in-state hospitality, and retail industries on which a significant share of dividend dollars are spent.
- The benefit to Anchorage's economy from resource based industries in the periphery is likely to be enhanced in the future by a number of probable-to-potential events. These include:
 - ⇒ Enhanced petroleum recovery, with a total value of about \$3.4 billion supporting 5,690 jobs and generating over \$250 million in annual labor income for Anchorage/Mat-Su.
 - ⇒ The Trans-Alaska Gas System (TAPS), a natural gas pipeline with a total value of about \$3.9 billion, supporting 9,000 direct jobs and 9,000 other jobs for Anchorage/Mat-Su residents during construction, and generating over \$700 million in annual labor income.
 - ⇒ ANWR petroleum exploration and development, worth \$16 billion in total output over a 20-year period and generating 7,368 Anchorage/Mat-Su jobs with an annual payroll of nearly \$300 million.

- ⇒ The Alaska Seafood Center in Anchorage, worth \$137 million in economic activity and 1,646 jobs in the core region during the construction phase, with 1,109 long-term jobs and \$34 million in annual labor income.
- Alaska's peripheral regions show wide variation in economic mix:
 - ⇒ The Gulf Coast is strongly diversified in tourism, fishing, timber and lumber, oil and gas production, refining and transport, and government.
 - ⇒ The Fairbanks region contains Alaska's second-largest city, whose diversified economy reflects its role as the center for interior Alaska.
 - ⇒ The Northern regional economy is dominated by the development of vast oil reserves that have driven Alaska's statewide economy for the last two decades.
 - ⇒ The Northwest/Interior is by far the largest and most sparsely populated region, where subsistence, mining and fisheries are the primary sources of jobs.
 - ⇒ The Southwest is the center of the world's richest fisheries. Commercial fishing and fish processing are primary sources of employment.
 - ⇒ The Southeast, home to the state capital, is dominated by government but also has strong sectors in tourism, timber, and fisheries.
 - Alaska's peripheral regions also show wide variation in socio-economic mix compared to Anchorage/Mat-Su:
 - ⇒ Most other parts of the state, except for the Gulf Coast and Southeast, have a combination of lower per capita income and higher cost of living. This results in per capita purchasing power that is much below Anchorage. Factors of remoteness and climatic extremes also tend to drive the cost of public service delivery higher in outlying areas.
 - Anchorage/Mat-Su residents derive 8 percent of their total labor income from working in the periphery region, while residents of the periphery earn only 1 percent of their total labor income from working in the core. More than \$400 million in net labor income flows annually from the periphery to Anchorage/Mat-Su, paid to people who reside in the core and work elsewhere in Alaska.

RESEARCH METHODOLOGY

The Regions of Alaska

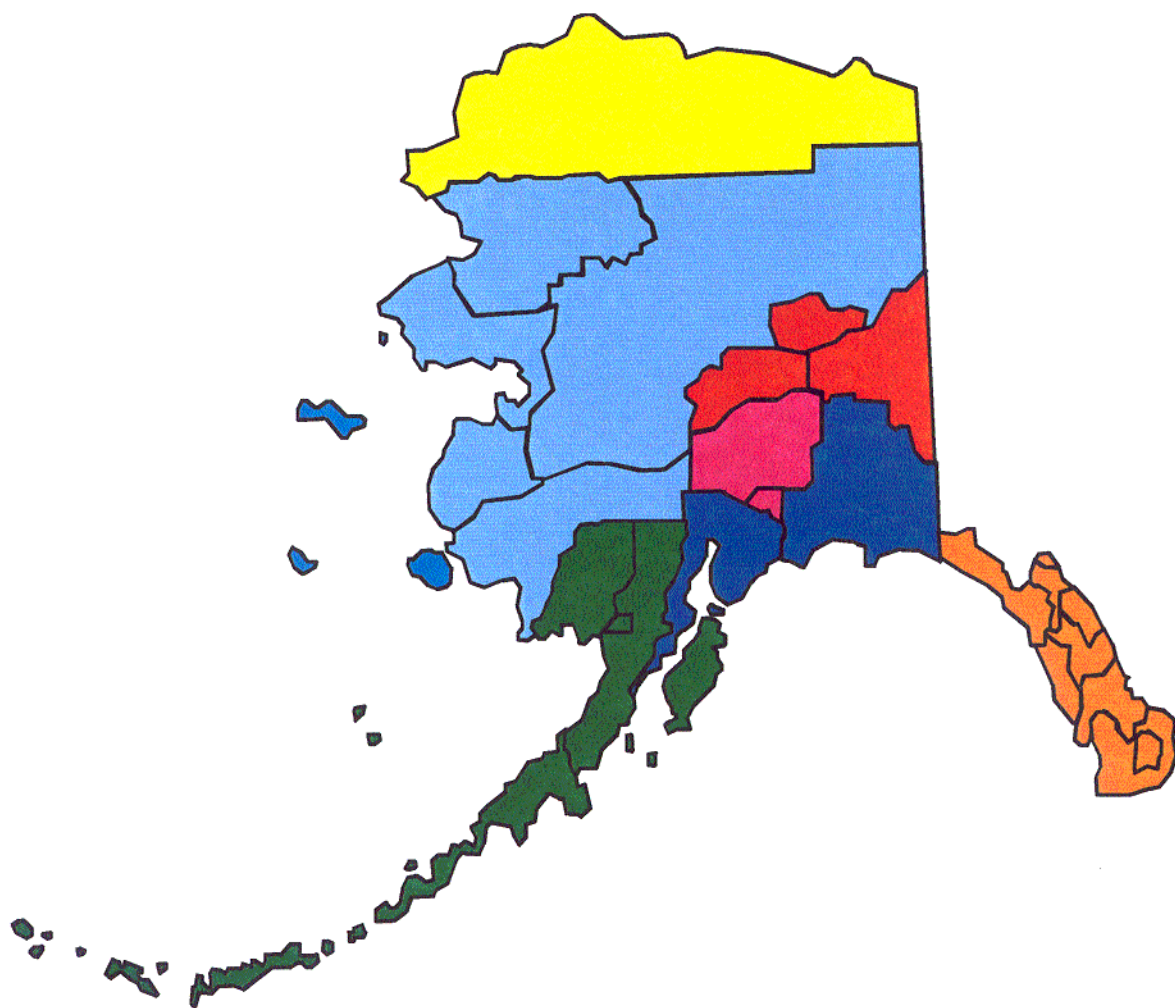
Regional groupings of the boroughs, municipalities, and census areas of Alaska have been arranged in various ways for a variety of purposes by federal and state government agencies and by university and private-sector analysts and researchers. Similarly, this analysis has developed its own regional groupings. They generally correspond to the others and are designed as shown in Figure 1 and Table 1.








Table 1.
Study Regions of Alaska

CORE REGION	
<i>Anchorage/Mat-Su Region</i>	
Municipality of Anchorage	
Matanuska-Susitna (Mat-Su) Borough	

PERIPHERY REGION	
<u>Fairbanks Region</u>	<u>Southeast Region</u>
Denali Borough	Haines Borough
Fairbanks-North Star Borough	Juneau Borough
Southeast Fairbanks Census Area	Ketchikan Gateway Borough
	Prince of Wales Island-Outer Ketchikan Census Area
	Sitka City and Borough
<u>Gulf Coast Region</u>	Skagway-Hoonah-Angoon Census Area
Kenai Peninsula Borough	Wrangell-Petersburg Census Area
Valdez-Cordova Census Area	Yakutat Borough
<u>Northern Region</u>	<u>Southwest Region</u>
North Slope Borough	Aleutians East Borough
	Aleutians West Census Area
<u>Northwest/Interior Region</u>	Bristol Bay Borough
Bethel Census Area	Dillingham Census Area
Nome Census Area	Kodiak Island Borough
Northwest Arctic Borough	Lake & Peninsula Borough
Wade Hampton Census Area	
Yukon Koyukuk Census Area	

Figure 1
Study Regions of Alaska



Study Regions	
	Anchorage / Mat-su
	Northern
	Northwest / Interior
	Fairbanks
	Southwest
	Gulf Coast
	Southeast

Variations in Regional Economies

This study describes Alaska's economy by region, with a focus on basic industries that add new dollars to the economy by exporting goods and services.

The wide variation in dominant economic activity among regions illustrates the diverse character of Alaska as well as the corresponding range of sources of impact from outlying regions upon Anchorage. The contribution of each region to Alaska's Gross State Product (see Appendix III) provides a perspective on relative economic scale as well as enabling measurement of "spillover" effects among regions. These data also strengthen the analysis of the core-periphery relationship between Anchorage and the rest of the state.

The Survey

The first step in the study was to survey 155 Anchorage-based firms from key industry sectors that do business with the remainder of Alaska. These firms were asked to provide proprietary information on a confidential basis. Fifty-six firms (36%) responded with data allocating shares of employment, payroll, purchases, and receipts among Anchorage/Mat-Su, rest of Alaska, rest of U.S., and foreign. Industries surveyed included construction, industrial supply, transportation, oil and gas extraction, oil field supply, engineering, environmental services, finance, law, and medicine.

The purpose of the survey was to assure that the study findings were grounded in experience-based data. These data have been used to cross-check and refine mathematical relationships in an input-output model (described below) that generated the quantitative findings of the study.

Other Data Sources

A wide range of useful data is collected by agencies of the State of Alaska and the Bureau of Economic Analysis of the U.S. Department of Commerce. Particularly relevant to the study are "regional economic profiles" from the latter. These contain data that enable comparison of employment and earnings by Alaskans within each region and among regions, capturing the degree to which individuals residing in one region work and earn income in another region.

From state sources, other data provide valuable information on socio-economic characteristics and public service costs in the communities and sub-regions of Alaska.

From private sector sources come listings of the major firms in each industry group that were used to identify survey recipients.

The Model

Data from the above sources were fed into an input-output model, a widely accepted method of economic analysis that served as the basic tool of this study. The model simulates complex inter-industry connections that generate direct and indirect impacts through a host of "multiplier" or ripple effects created when money is spent and re-spent in the economy.

This analysis records the economic value of both the input requirements that support production in each industry, and the output that is sold to customers in the marketplace. The analysis provides a cross-sectional view of the purchases and sales of goods and services among industries, based on the linkages or interdependencies among producers in each industry sector.

The model establishes a set of economic accounts which track labor force and earnings flows between Alaska regions, as well as sales transactions taking place among industries within each region and between that region and the rest of Alaska.

IMPLAN, a well-known U.S. model, has been used to achieve the research goals of this study. The model has been "calibrated" to reflect the specific economic characteristics of Alaska (see Appendix). Various scenarios have been run through the model to test the accuracy of these adjustments.

A further step required to construct the model that presents a picture of Anchorage and the rest-of-state as trading partners was to consolidate data. Data from the six outlying regions was consolidated and their combined impact on Anchorage/Mat-Su measured.

Measurement of Economic Impact

The foregoing elements - data from surveys and economic literature, the model as modified and calibrated for Alaska, and scenario information - were combined to produce the study's key finding: the impact on jobs, income, and value of output in the Anchorage economy that can be credited to demand for goods and services generated by the rest of Alaska. This impact is expressed both in dollars and as a percentage of total economic activity in the Anchorage region.

The analysis is based entirely on currently existing economic activity. The model was also used to evaluate the impact of possible future events on Anchorage, the periphery,

and Alaska statewide. These "economic scenarios" deal with the most probable among a range of potential sources of future stimulus.

It is not surprising that scenarios with the largest quantitative effects are in the petroleum sector. In addition, however, significant impacts would arise from a major new Anchorage-based facility to process or handle products from fisheries, mining, or forestry resources harvested or extracted elsewhere in Alaska. A specific example from the fish processing industry is discussed in the study.

ALASKA'S ECONOMIC PROFILE

Alaska's Natural Resource Economy

Natural resource based industries dominate the Alaska economy. The most recent Gross State Product (GSP) estimates (ISER, 1997) credit resource industries with about 60 percent of Alaska's 1996 GSP - \$15.5 billion of the \$25.85 billion total. Three fourths of the value of natural resource production was in unprocessed form such as crude oil, fish, and timber. Most of Alaska's natural resources are processed out of state. Also, virtually all production - 98.5 percent - is outside the Anchorage core region.

Table 2.
Natural Resource Industries of Alaska, 1996
Estimated Value of Production (in millions \$)

<i>Natural Resource Sector</i>	<i>1996 Estimated Value of Production</i>	<i>Percent of Total Natural Resources</i>	<i>Share of Sector Produced in Rest of Alaska</i>
TOTAL	\$15,494.66	100.0%	98.5%
<i>Agriculture</i>	\$12.62	0.1%	43.9%
Crops	\$7.87	0.1%	42.1%
Livestock	\$4.74	0.0%	46.9%
<i>Fisheries</i>	\$1,079.00	7.0%	97.4%
Halibut	\$57.00	0.4%	98.2%
Salmon	\$477.00	3.1%	99.1%
Herring	\$48.00	0.3%	95.8%
Shellfish	\$241.00	1.6%	99.2%
Groundfish	\$256.00	1.7%	92.8%
<i>Seafood processing</i>	\$2,378.62	15.4%	97.3%
<i>Mineral industry</i>	\$591.03	3.8%	100.0%
Lead & zinc	\$413.93	2.7%	100.0%
Gold & silver	\$80.05	0.5%	100.0%
Miscellaneous metals	\$0.80	0.0%	100.0%
Sand & gravel	\$33.65	0.2%	100.0%
Crushed & building stone	\$24.40	0.2%	100.0%
Coal	\$38.18	0.2%	100.0%
<i>Oil & gas industry</i>	\$9,827.32	63.4%	100.0%
<i>Petroleum refining</i>	\$924.65	6.0%	89.8%
<i>Timber</i>	\$58.28	0.4%	78.4%
<i>Forest products</i>	\$623.16	4.0%	96.6%
Lumber & wood products	\$373.16	2.4%	94.3%
Pulp & paper	\$250.00	1.6%	100.0%

The Anchorage Core

Alaska's economy is dominated by the Anchorage metropolitan area. It is recognized as the center of commerce for the state and is home to half of all state residents. The Port of Anchorage, the Anchorage International Airport, and the Alaska Railroad enable Anchorage to serve as the primary cargo distribution center in Alaska. In addition, most major companies with operations in Alaska are headquartered in Anchorage, and the state government workforce almost equals that in Juneau, the state capital.

While there are a significant links between the Alaska economy and the Puget Sound region in Washington State (Chase and Pascall, 1996), Anchorage functions as the state's financial, trade, transportation, construction, and services center. Historically, Anchorage's economy was narrowly dependent upon a few industries, particularly fisheries and the military. However, the 1964 earthquake was the impetus for the Port of Anchorage to grow into a major transportation hub with modern container handling facilities for large volumes of cargo. A few years later, oil was discovered and then development of Prudhoe Bay elevated the state's economy to new heights. In recent years, the metropolitan economy has become more diversified, broadly based on businesses, retail activity, and financial, distribution, medical, and other services.

Core and Periphery: Comparative Size and Strength

The three tables that follow show industrial output, employment, labor income, and other value added for the State of Alaska, the Anchorage/Mat-Su core region, and the rest-of-Alaska periphery. Major perspectives revealed by these tables include:

Employment is almost exactly divided between the core and periphery. However, the value of output is 30.5 percent higher in the periphery. This is due primarily to the extraordinarily high value of production per worker in the petroleum and fisheries industries.

Not surprisingly, this effect leads to total labor income that is higher in the periphery, yet it only exceeds the core by 10.6 percent. Thus, the periphery's edge in earnings is just one-third as great as its edge in value of output. Much of the disparity is accounted for by labor income at resource-industry administrative and support centers located in Anchorage - an illustration of the economic benefit to the core from activity in the periphery.

Table 3.
Alaska Total Industrial Output, Employment, Labor Income
and Other Value Added, 1996

<i>Sector</i>	<i>Industrial Output (in millions \$)</i>	<i>Employment</i>	<i>Labor Income (in millions \$)</i>	<i>Other Value Added (in millions \$)</i>
Agriculture	71.0	2,906	39.4	9.6
Forestry	58.3	205	6.1	29.5
Fishing	1,079.0	12,530	233.6	70.3
Oil & gas	9,827.3	9,202	691.6	2,539.6
Other mining	618.7	1,563	135.3	230.9
Construction	2,483.8	19,948	1,100.2	1,185.2
Manufacturing, total	4,422.8	17,697	628.8	745.9
Seafood processing	2,378.6	10,819	335.5	226.8
Other manufacturing	2,044.2	6,878	293.3	519.1
Transport & public utilities	4,593.9	23,388	1,099.8	2,475.8
Wholesale trade	990.4	10,200	311.8	374.9
Retail trade	3,331.0	76,846	1,221.7	686.3
Finance, insurance & real estate	3,804.3	20,862	415.0	3,428.5
Services	3,404.8	65,065	1,781.4	752.7
Government, total	4,305.6	97,104	3,853.8	129.0
Federal, civilian	968.4	20,928	883.7	17.4
Federal, military	559.1	22,334	559.1	0.0
State & local	2,778.1	53,842	2,411.0	111.6
TOTAL	38,990.9	357,516	11,518.5	12,658.1

Note: Agriculture includes livestock and crops, horticultural specialties, and agricultural services.

Table 4.
Anchorage/Mat-Su Periphery Region Total Industrial Output, Employment, Labor
Income and Other Value Added, 1996

Sector	Industrial Output (in millions \$)	Employment	Labor Income (in millions \$)	Other Value Added (in millions \$)
Agriculture	48.6	2,039	27.5	5.7
Forestry	12.6	44	1.3	6.4
Fishing	28.3	328	6.1	1.8
Oil & gas	3,979.1	3,721	279.7	1,028.3
Other mining	45.3	159	10.2	18.2
Construction	970.4	7,004	342.6	470.0
Manufacturing, total	433.2	2,966	97.9	117.8
Seafood processing	64.3	215	6.7	4.5
Other manufacturing	368.9	2,751	91.3	113.3
Transport & public utilities	2,380.3	13,480	616.5	1,094.2
Wholesale trade	725.8	7,467	228.2	274.8
Retail trade	1,845.8	42,289	683.8	384.3
Finance, insurance & real estate	2,470.8	14,628	316.3	2,116.8
Services	1,971.0	38,081	1,041.4	422.6
Government, total	2,012.5	46,449	1,810.1	28.0
Federal, civilian	559.5	12,130	512.3	9.6
Federal, military	307.5	12,269	307.1	0.0
State & local	1,145.4	22,050	990.6	18.4
TOTAL	16,923.6	178,654	5,461.8	5,968.8

Note: Agriculture includes livestock and crops, horticultural specialties, and agricultural services.

Table 5.
Rest of Alaska Periphery Region Total Industrial Output, Employment, Labor Income
and Other Value Added, 1996

Sector	Industrial Output (in millions \$)	Employment	Labor Income (in millions \$)	Other Value Added (in millions \$)
Agriculture	22.3	866	11.8	3.9
Forestry	45.7	161	4.7	23.1
Fishing	1,050.7	12,216	227.7	68.5
Oil & gas	5,848.2	5,483	412.0	1,511.3
Other mining	573.4	1,405	125.2	212.7
Construction	1,513.4	12,951	758.0	715.1
Manufacturing, total	4,989.6	14,745	531.4	628.1
Seafood processing	2,314.3	10,617	329.2	222.3
Other manufacturing	1,675.3	4,128	202.2	405.9
Transport & public utilities	2,213.6	9,904	483.0	1,381.6
Wholesale trade	264.5	2,728	83.4	100.1
Retail trade	1,485.2	34,547	537.7	302.0
Finance, insurance & real estate	1,333.4	6,224	98.4	1,311.7
Services	1,433.9	26,970	739.6	330.1
Government, total	2,293.1	50,660	2,043.8	101.0
Federal, civilian	408.9	8,794	371.2	7.8
Federal, military	251.6	10,062	251.9	0.0
State & local	1,632.6	31,804	1,420.7	93.1
TOTAL	22,067.3	178,862	6,056.7	6,689.3

Note: Agriculture includes livestock and crops, horticultural specialties, and agricultural services.

DIMENSIONS OF ECONOMIC IMPACT

Multiplier Effects and the Impact of Rural Industry on Urban Centers

Basic industries, exporting goods and services and drawing income from elsewhere into their region, have long been recognized as engines of economic development. A fish processing plant in Dillingham in Alaska's southwest region is an example of a basic industry on which other local economic activity depends. In large cities, the distinction between such basic industries and those serving only area residents may be less obvious but it is no less valid.

Economic development specialists and local officials strive to attract new basic industry because they know that for every job it directly supports, a much larger number of jobs (the "multiplier effect") will be created in other, local-serving industries.

Does a basic industry in a rural area have the same multiplier effect as its urban counterparts? Yes, in fact, a rural industry often creates demand for inputs that spill over beyond its immediate region to benefit urban-area industries that supply a large share of business and consumer needs in rural communities. The existence of such rural-urban linkages is widely recognized but questions remain about the extent and magnitude of these economic relationships. The specific impacts of demand from rural areas in stimulating the Anchorage economy are addressed in the following section.

Interregional Trade in Goods and Services

Using the IMPLAN model and results from the business/industry survey, estimates were made of the value of trade in goods and services between the Anchorage/Mat-Su core region and the rest-of-Alaska periphery region, and between those two regions and the rest of the U.S.

Trade estimates for these regions are summarized in Table 6, which shows the destinations for output produced in the two study regions, allocating total exports to the core or periphery, to the rest of the U.S., and to foreign countries. The table also shows absorption of production within each region, and distinguishes imports from the other region versus imports from the rest of the world.

Table 6.
Anchorage/Mat-Su Core Region and Rest of Alaska Periphery Region
Goods & Services Trade, 1996 (in millions \$)

FROM		TO				Total Output
		Core Region	Periphery Region	Rest of U.S.	Foreign	
Anchorage/Mat-Su Core Region	Total	11,291.1	3,416.9	1,793.9	421.7	16,923.6
	Goods	2,093.6	1,331.7	1,059.1	62.6	4,547.1
	Services	9,197.5	2,085.1	734.8	359.1	12,376.5
Rest of Alaska Periphery Region	Total	989.4	9,703.7	8,839.3	2,535.0	22,067.3
	Goods	388.3	992.5	7,796.0	2,353.2	11,530.0
	Services	601.0	8,711.2	1,043.3	181.8	10,537.3
Rest of World	Total	4,643.2	8,946.8			
	Goods	2,492.9	7,453.4			
	Services	2,150.3	1,493.4			
Gross Regional Demand	Total	16,923.6	22,067.3			
	Goods	4,974.8	9,777.6			
	Services	11,948.8	12,289.7			

A striking observation from the above table is the importance of trade to both regional economies. The Alaska periphery economy is quite open, exporting 56 percent of its total industrial output. Only 4 percent of the periphery's total output is exported to the Anchorage/Mat-Su core region, while over 51 percent is exported to markets in the rest of the U.S. and foreign countries.

The Anchorage/Mat-Su core region exports about 33 percent of its total industrial output, the majority to the periphery region. The net trade balance is strongly in favor of Anchorage/Mat-Su. The core region exports \$3.4 billion in goods and services to the periphery - more than three times its \$989 million in imports from that region. This implies that over \$2.4 billion flows from the periphery to Anchorage/Mat-Su on the trade account. The periphery exports very little to the core yet obtains about 28 percent of its imports from the core.

The relative importance of each region as a buyer of the other region's goods and services, and the associated employment and labor income effects, are summarized in Tables 7 and 8. The flow of trade is most pronounced in services. Almost two-thirds of Anchorage/Mat-Su's exports of services are to the rest of Alaska.

Table 7.
Exports from Anchorage/Mat-Su Core to Rest of Alaska Periphery

<i>Sector</i>	<i>Exports to Periphery</i>	<i>Percent of Total Sales</i>	<i>Percent of Total Exports</i>	<i>Employment Effect</i>	<i>Labor Income Effect</i>
Agriculture	8.0	16.5%	46.0%	336	4.5
Forestry	1.2	9.5%	50.0%	4	0.1
Fishing	3.0	10.6%	23.1%	35	0.6
Oil & gas	1,250.0	31.4%	57.4%	1,170	88.0
Other mining	22.6	49.8%	84.9%	79	5.1
Construction	419.8	43.3%	100.0%	3,034	148.4
Manufacturing, total	56.3	13.0%	24.2%	411	13.6
Seafood processing	2.0	3.1%	4.0%	7	0.2
Forest products	5.0	15.1%	29.2%	24	1.0
Other manufacturing	49.3	14.7%	29.8%	381	12.4
Transport & public utilities	449.6	18.9%	39.4%	2,549	116.6
Wholesale trade	249.4	34.4%	88.6%	2,568	78.5
Retail trade	228.1	12.4%	62.4%	5,233	84.6
Finance, insurance & real estate	265.3	10.7%	86.3%	1,573	34.0
Services, total	447.6	22.7%	70.2%	8,031	235.7
Business services	26.8	9.9%	68.6%	604	15.6
Health services	116.1	23.1%	90.5%	1,771	70.7
Legal services	27.3	35.0%	72.1%	425	20.4
Engineering & mgmt. services	127.4	36.7%	77.6%	1,861	59.0
Other services	150.1	19.4%	55.9%	3,371	69.9
Government	26.1	1.3%	100.0%	604	23.5
TOTAL	3,427.0	20.2%	60.6%	25,628	833.4

Note: Exports and Labor Income Effects are in millions of dollars.

As measured by sales, the periphery region is an important market for Anchorage/Mat-Su businesses in wholesale trade, engineering, management, and legal services. The largest flow, an estimated \$1.25 billion annually, is petroleum-related. Oil and gas field services and supplies, and administrative services, are exported to the periphery where petroleum exploration, development, and production occur.

In terms of employment and labor income (wages, salaries, and proprietors' income), \$833 million is earned annually by 25,628 workers resident in Anchorage/Mat-Su who benefit from trade with the periphery. This translates into one out of every seven workers in the core region who are directly or indirectly dependent on exports to the rest of Alaska - an extraordinarily high proportion of employment and activity linked to a single economic sector.

Table 8.
Exports from Rest of Alaska Periphery to Anchorage/Mat-Su Core

<i>Sector</i>	<i>Percent of</i>			<i>Employment Effect</i>	<i>Labor Income Effect</i>
	<i>Exports to Core</i>	<i>Total Sales</i>	<i>Percent of Total Exports</i>		
Agriculture	7.2	32.1%	71.6%	278	3.8
Forestry	6.85	15.0%	48.9%	24	0.7
Fishing	21.0	2.0%	3.2%	244	4.5
Oil & gas	169.6	2.9%	3.0%	159	11.9
Other mining	12.4	2.2%	2.4%	30	2.7
Construction	92.3	6.1%	100.0%	789	46.2
Manufacturing, total	171.3	4.3%	4.6%	490	23.5
Seafood processing	17.5	0.8%	0.8%	82	2.5
Forest products	100.5	17.0%	21.5%	383	19.8
Other manufacturing	53.3	1.3%	1.5%	25	1.1
Transport & public utilities	208.4	9.4%	18.4%	931	45.4
Wholesale trade	23.72	9.0%	73.7%	244	7.5
Retail trade	81.4	5.5%	47.1%	1,891	29.4
Finance, insurance & real estate	55.3	4.1%	73.0%	258	4.1
Services, total	140.5	9.8%	44.0%	2,741	68.3
Business services	2.9	3.1%	48.1%	64	1.7
Health services	15.8	4.0%	74.2%	241	9.6
Legal services	2.8	10.0%	50.9%	44	2.1
Engineering & mgmt. Services	31.2	20.1%	72.7%	455	14.4
Other services	87.8	11.5%	36.1%	1,937	40.5
Government	0.0	0.0%	0.0%	0	0.0
TOTAL	989.9	4.5%	8.0%	8,080	248.0

Note: Exports and Labor Income Effects are in millions of dollars.

A very different picture emerges when examining the importance of Anchorage/Mat-Su as a regional market for goods and services exports from the periphery. With the exception of agriculture, engineering, and management services, periphery exports to the core account for less than one-fifth of total sales. A modest \$248 million in labor earnings and 8,080 jobs are supported by this trade - only 30 percent as large as the reverse flow. Less than 5 percent of employment in the rest of Alaska relies on exports to the core versus more than the 14 percent reliant on trade from the core to the periphery.

Interregional Labor and Labor Earnings Flows

For workers who commute to jobs outside their region, the Anchorage/Mat-Su core and the periphery are unevenly linked. Labor and earnings flows are more important for the core region than the periphery. Data representing labor flows and corresponding earnings payments are presented in Table 9. Labor flows are based on 1990 estimates of interregional commuting and earnings flows are constructed from

1990 estimates of dollar earnings by area of work and borough/census area of residence.

Table 9.
Labor and Earnings Flows Between Anchorage/Mat-Su Core Region
and Rest of Alaska Periphery Region, 1996

PLACE OF RESIDENCE	PLACE OF WORK			Totals by Place of Residence	
	<i>Core</i>	<i>Periphery</i>	<i>Elsewhere</i>	<i>Labor</i>	<i>Earnings</i>
<u>Anchorage/Mat-Su Core Region</u>					
Labor	175,650	7,654	967	184,271	
Earnings	\$5,341.4	\$438.5	\$31.8		\$5,811.8
<u>Rest of Alaska Periphery Region</u>					
Labor	832	167,729	1,611	170,172	
Earnings	\$30.0	\$5,463.5	\$44.3		\$5,537.8
<u>Elsewhere</u>					
Labor	2,171	3,479			
Earnings	\$90.4	\$154.7			
Total Labor by Place of Work	178,654	178,862			
Total Earnings by Place of Work	\$5,461.8	\$6,056.7			

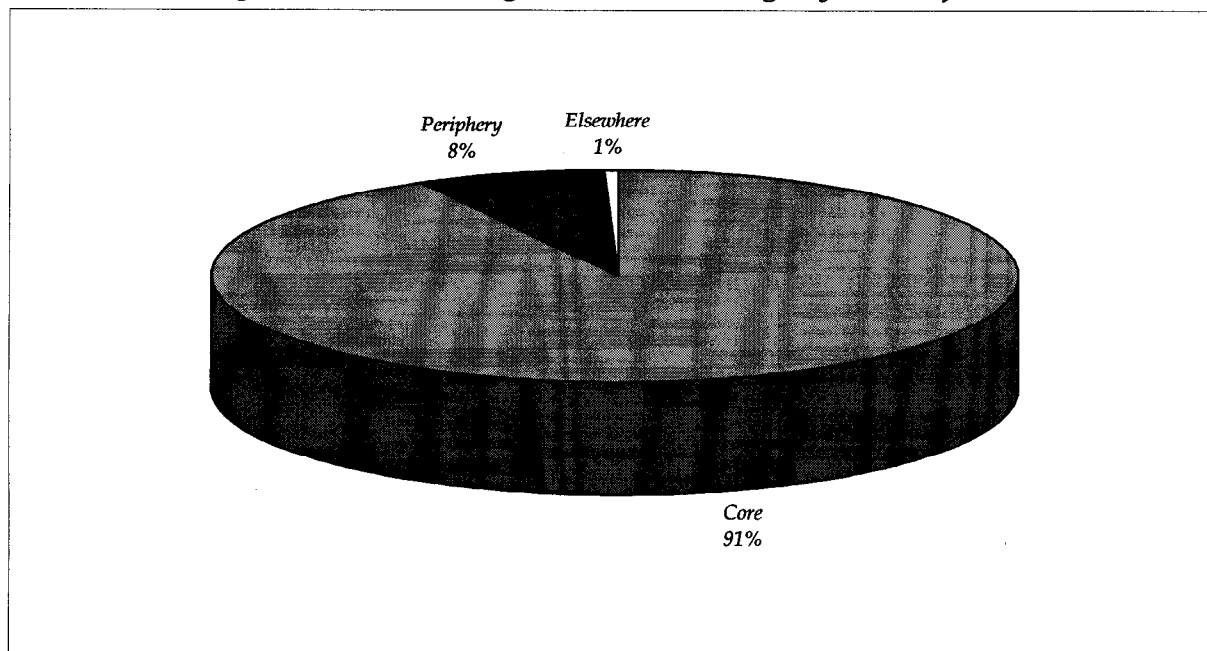
Sources: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, 1997.

Note: Labor and earnings flows are estimated for 1996 based on 1990 census data. Earnings consist of employee compensation and proprietors' income. Earnings flows are in millions of dollars.

Journey-to-work data were used to construct a flow matrix depicting the movement of labor services from region of residence (row) to region of work (column). This approach is based on prior work on labor market areas by Tolbert and Killian (1987). One can estimate the number of workers commuting from outside a particular region by reading down that region's column in Table 9. For example, of the 178,654 workers in the Anchorage/Mat-Su region (labor total under column one), over 98 percent (175,650) also lived in the core region, while 832 workers (0.5 percent) commuted from the periphery and 2,171 workers (1.2 percent) commuted from elsewhere (e.g., other states). For the periphery, 94 percent (167,729) of the total 178,862 workers resided there, while 7,652 workers (4.3 percent) commuted from the Anchorage/Mat-Su region, and 3,479 workers (1.9 percent) commuted from elsewhere. In relative terms, the difference between the core and periphery regions is substantial and reversed from other core-periphery studies (Holland and Weber, 1996). More than nine times more workers residing in the core region commute to job sites in the periphery compared with those periphery residents commuting to the core region.

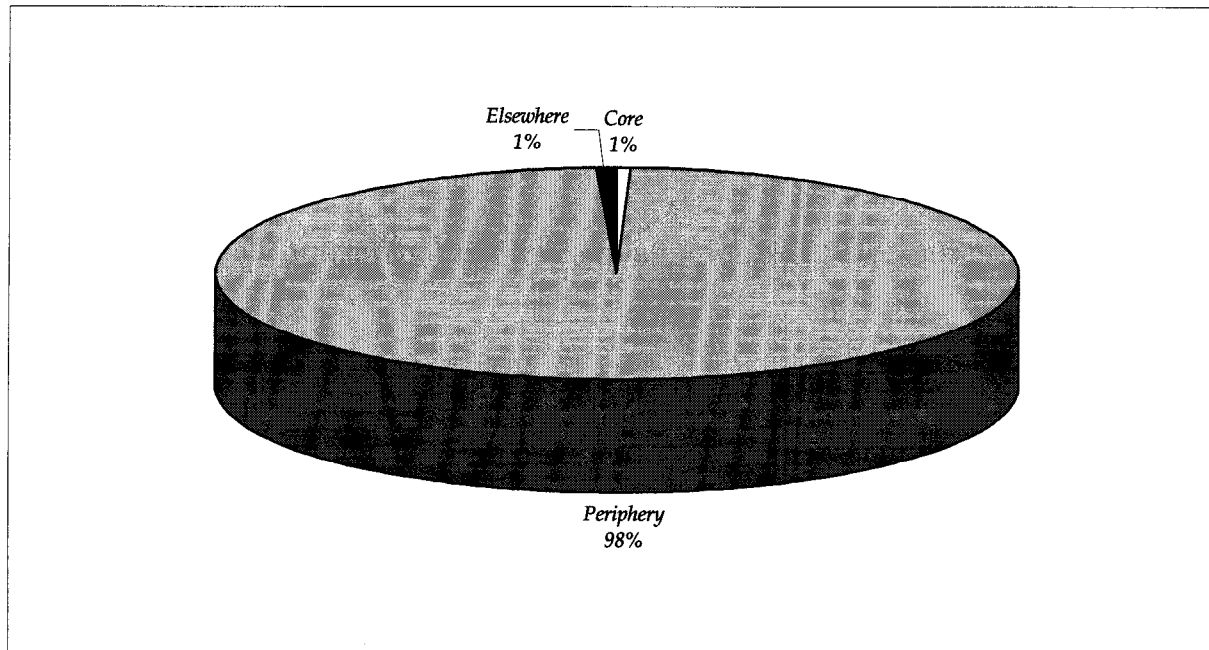
Earnings flows also appear in the table beneath the corresponding labor flow which generated it. The figures below illustrate total labor earnings of residents working in various locations. For Anchorage/Mat-Su residents, 91 percent of earnings (\$5,341 million) were from the Anchorage/Mat-Su region, while 8 percent (\$438 million) was earned from labor exports (i.e., payment for work performed at job sites in the periphery).

Figure 2
Anchorage/Mat-Su Core Region Labor Earnings by Place of Work, 1996



In contrast to the labor earnings of Anchorage/Mat-Su residents, only one percent of total labor earnings of periphery residents was due to commuting to the Anchorage/Mat-Su core region. Only \$30 million of total labor earnings was derived from the export of labor services, while 98 percent of 1996 earnings (\$5,464 million) was received from payment for work performed within the periphery (Figure 3).

Figure 3
Rest of Alaska Periphery Region Labor Earnings by Place of Work, 1996



Perhaps the most significant finding from this portion of the analysis is that core residents earned more than \$400 million more from working elsewhere in Alaska than periphery residents earned in Anchorage/Mat-Su region. In other words, residents in the core region of Anchorage/Mat-Su depend much more heavily on the periphery for income than vice versa.

REGIONAL ANALYSES

Concentration of Major Sectors of Employment by Region

The employment concentration table (Table 10) indicates the various industries that drive the regional economies in Alaska. For instance, the Anchorage/Mat-Su region specializes in a wide range of service industries, particularly construction; finance, insurance, and real estate; wholesale and retail trade; transportation and utilities; services; and government (Federal government, civilian). In contrast, the Northern regional economy is driven by oil and gas activity as well as construction and government (state and local).

Table 10 provides a direct measure of over- and under-concentrations in each industry within each region, compared to the state as a whole.

The table below shows variations in economic mix by region, as reflected in the concentration of jobs. The state-wide average is 1.00. Thus, for example, the ratio of jobs in agriculture, forestry, and fishing to total employment in Anchorage/Mat-Su is 40.7 percent the state average, while in Southwest it is 283.7 percent of the state average.

Table 10.
Concentration of Major Sectors of Employment by Region

<i>Major Sector</i>	<i>Anchorage/</i>		<i>Gold</i>		<i>Northwest</i>		
	<i>Mat-Su</i>	<i>Fairbanks</i>	<i>Coast</i>	<i>Northern</i>	<i>Interior</i>	<i>Southeast</i>	<i>Southwest</i>
Ag., forestry, fishing	0.41	0.35	2.38	0.11	2.09	1.96	2.84
Mining	0.81	0.46	1.30	13.13	1.05	0.16	0.01
Construction	1.10	1.02	1.05	1.01	0.28	1.01	0.53
Manufacturing	0.34	0.23	1.76	0.01	0.54	1.74	5.85
Transport & public utilities	1.11	2.53	0.98	0.68	0.96	0.92	0.71
Wholesale trade	1.48	0.12	0.80	0.02	0.14	0.50	0.44
Retail trade	1.10	2.81	0.99	0.41	0.67	1.01	0.58
Finance, insur, & real estate	1.29	0.14	0.71	0.42	0.83	0.87	0.47
Services	1.13	1.00	0.95	0.43	1.00	0.86	0.58
Government, Total	0.89	7.60	0.73	1.12	1.37	1.04	0.89
Federal, civilian	1.20	1.01	0.33	0.20	0.49	0.82	0.49
Federal, military	0.96	1.08	0.31	0.10	0.29	0.38	1.47
State and local	0.76	2.40	1.05	1.89	2.16	1.42	0.76

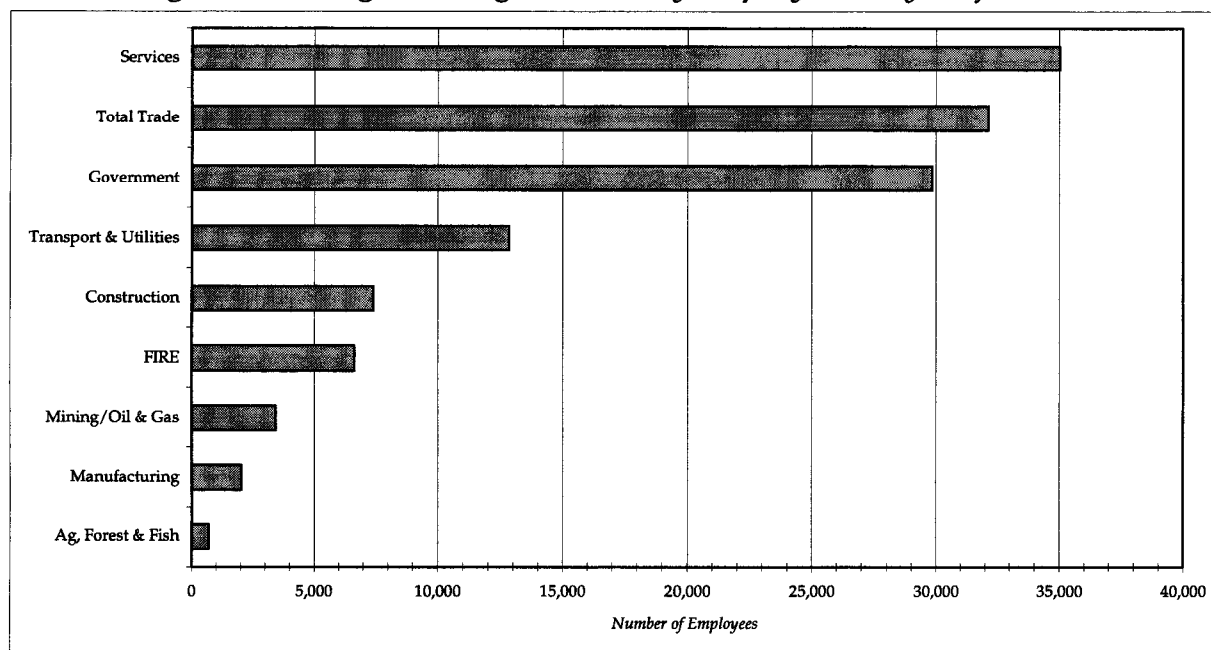
The notion that a region's employment concentrates in a particular industry suggests that the region produces more than it needs and therefore exports the surplus. In the above table, a concentration index greater than 1.00 suggests that the region produces a surplus in that good or service which is exported elsewhere. An index number of 1.00 would indicate little or no trade while an index number less than 1.00 would suggest that the region imports the good or service.

Economic Mix by Region

The regions of Alaska display significant economic variation in the mix of activities that are dominant. The following section explores these profiles.

Anchorage/Mat-Su Region

Figure 4
Anchorage/Mat-Su Region: Wage and Salary Employment by Major Sector, 1996



Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Anchorage is the center of commerce in Alaska and is home to about half of all state residents. Anchorage serves as the state's primary distribution hub. The metropolitan economy has become more diversified in recent years, broadly based on trade, government (including military), and services. Many industries and government agencies have located their administrative headquarters in Anchorage. Also, in recent years, trade and services within the metropolitan center have reaped the benefits of tourism.

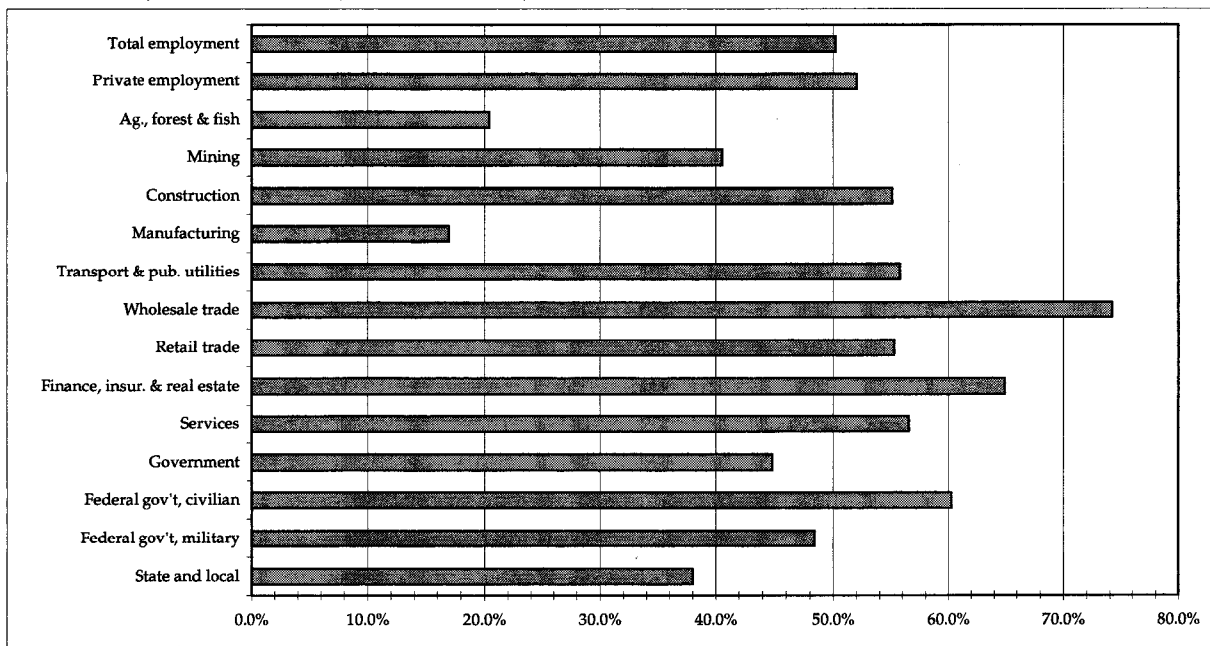
The Matanuska-Susitna (Mat-Su) Borough is placed in the same region due to the fact that a large share of its resident labor force commutes to the Municipality of Anchorage for work. Mat-Su Borough is the one of the fastest growing regions of the state. Between 1980 and 1996, its population nearly tripled—an annual growth rate more than

three times that of the state. The borough is more dependent upon natural resource-based activities of agriculture, tourism, forestry, and mining than Anchorage. Subsistence is an important activity for both native and non-native residents of Mat-Su.

Overall, Anchorage/Mat-Su has slightly more than half of the state's total employment. Reflecting its importance as a center for distribution, trade, services, and government, the Anchorage/Mat-Su region has over three-fourths of the state's wholesale trade employment; two-thirds of the state's finance, insurance and real estate employment; sixty percent of the state's Federal government (civilian) workforce; and well over half of the state's total employment in transportation and public utilities, construction, retail trade, and services. Anchorage figures prominently in mineral extraction employment, functioning as the administrative headquarters for petroleum companies operating in the North Slope and Cook Inlet as well as the vast array of oil service and supply firms. Anchorage also has a strong military presence, with nearly 9,000 military personnel stationed at Fort Richardson and Elmendorf Air Force Base.

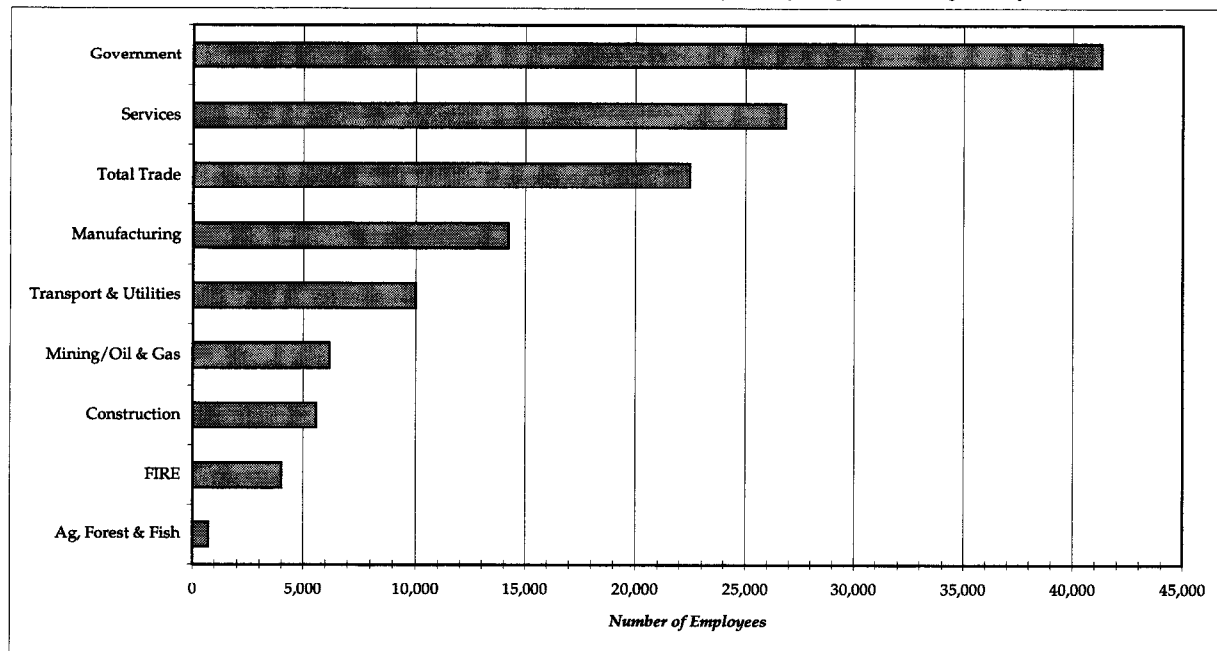
During the past few years, growth in regional employment has been slow—around 1 percent annually. Modest increases in services and trade jobs have offset cutbacks in petroleum industry employment.

Figure 5
Anchorage/Mat-Su Region: Share of Total State Employment by Major Sector, 1996



Rest of Alaska Periphery Region

Figure 6
Rest of Alaska Periphery Region: Wage and Salary Employment by Major Sector, 1996



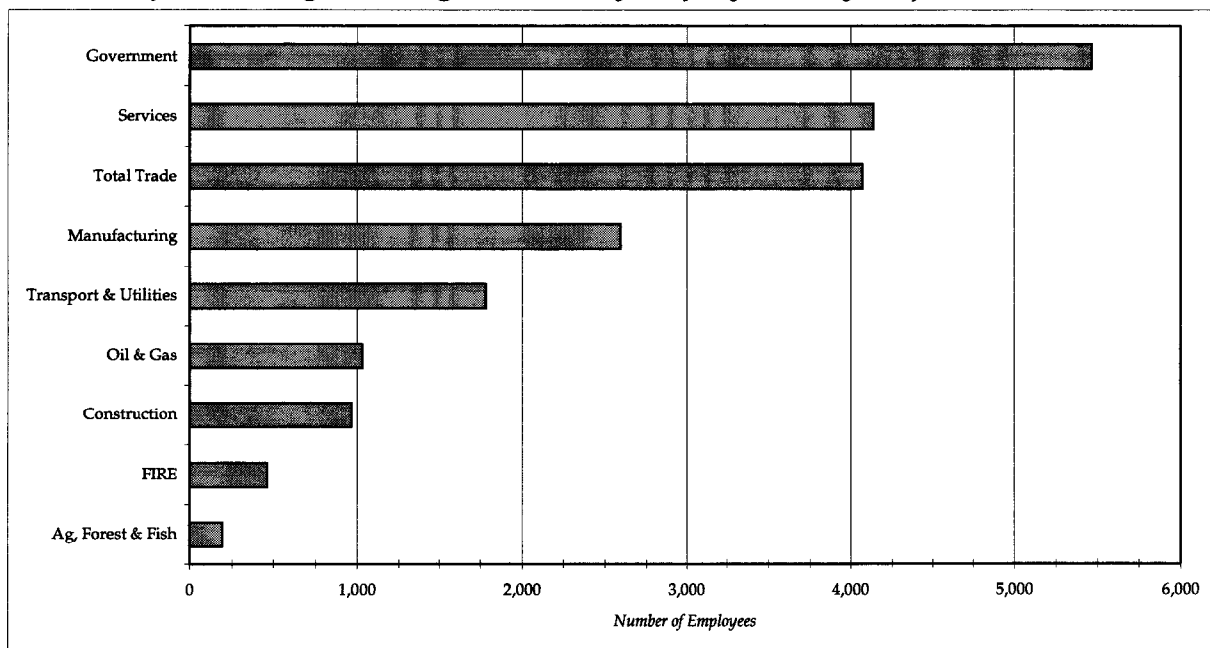
Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Gulf Coast Region

Diversification is the strong economic asset of the Gulf Coast region of Kenai and Valdez-Cordova, with strong sectors in tourism, fishing, timber and lumber, oil & gas production, transportation and refining, and government. Within the region are ports of shipment for crude oil from Prudhoe Bay and coal from Usibelli Mine. Kenai is the center of oil and gas industrial activity for Cook Inlet drilling and exploration. Refining of North Slope and Cook Inlet crude occurs at Nikiski. Oil companies, Alyeska Pipeline, and oil support and transportation services are major employers for Valdez-Cordova. Valdez is the southern terminus of the Trans-Alaska pipeline.

Figure 7
Gulf Coast Region: Wage and Salary Employment by Major Sector, 1996



Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

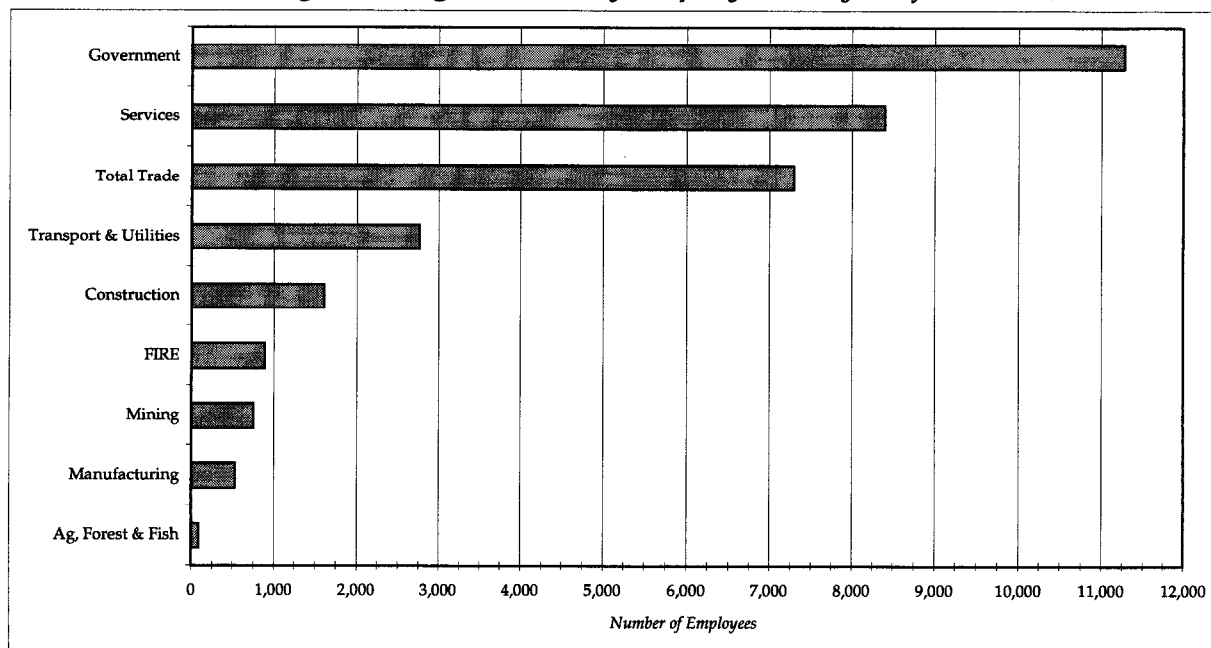
Fisheries have become more diverse in recent years. With real prices of salmon at historic lows, shellfish (particularly oysters) and bottom fishing have helped support the fishing industry in the region. Seafood processors continue to be significant employers. Local, state, and federal government agencies provide a major share of jobs.

Despite gains in diversification, the Gulf Coast region suffers from high rates of unemployment. This is due to the seasonal nature of work for natural resource-based sectors within the region.

Fairbanks Region

The Fairbanks region of Denali Borough, Fairbanks-North Star Borough, and Southeast Fairbanks Census Area includes Alaska's second largest city. As the regional center for interior Alaska, Fairbanks offers a diverse range of services including transportation, communications, financial, retail, medical and government.

Figure 8
Fairbanks Region: Wage and Salary Employment by Major Sector, 1996



Source: Alaska Department of Labor, Research & Analysis Division.

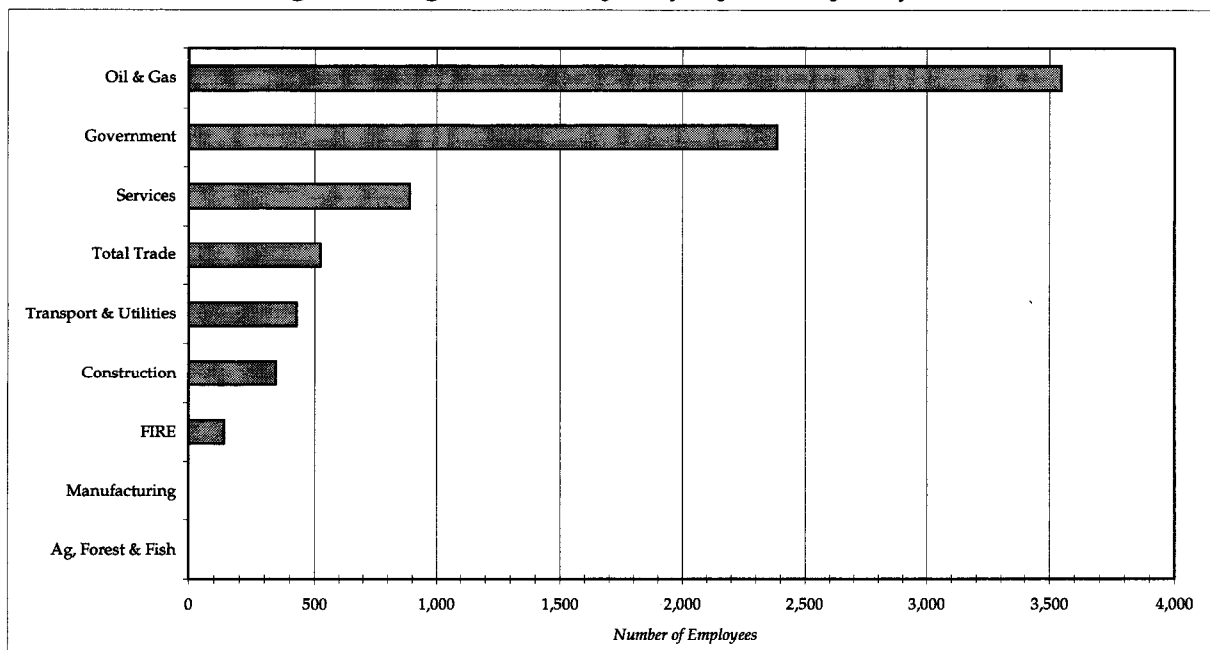
Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

The dominant government sector is due to the presence of several major employers including Fort Wainwright, Eielson Air Force Base, University of Alaska, and Denali National Park. Although mining is not a major employer, the sector represents one of the region's bright prospects. A number of new hard-rock mines are scheduled to come on-line within the next few years.

Northern Region

The North Slope Borough is home to the vast oil reserves that have driven the Alaskan economy for the last two decades. The Prudhoe Bay oil fields provide over 4,000 jobs in drilling, pipeline operations, cargo transportation, and a variety of support and service positions. Barrow, with 4,300 residents, is the seat of the Borough government and is the center for supplies and services to the region's villages. Subsistence represents a substantial element of the local economy in the borough's outlying villages.

Figure 9
Northern Region: Wage and Salary Employment by Major Sector, 1996



Source: Alaska Department of Labor, Research & Analysis Division.

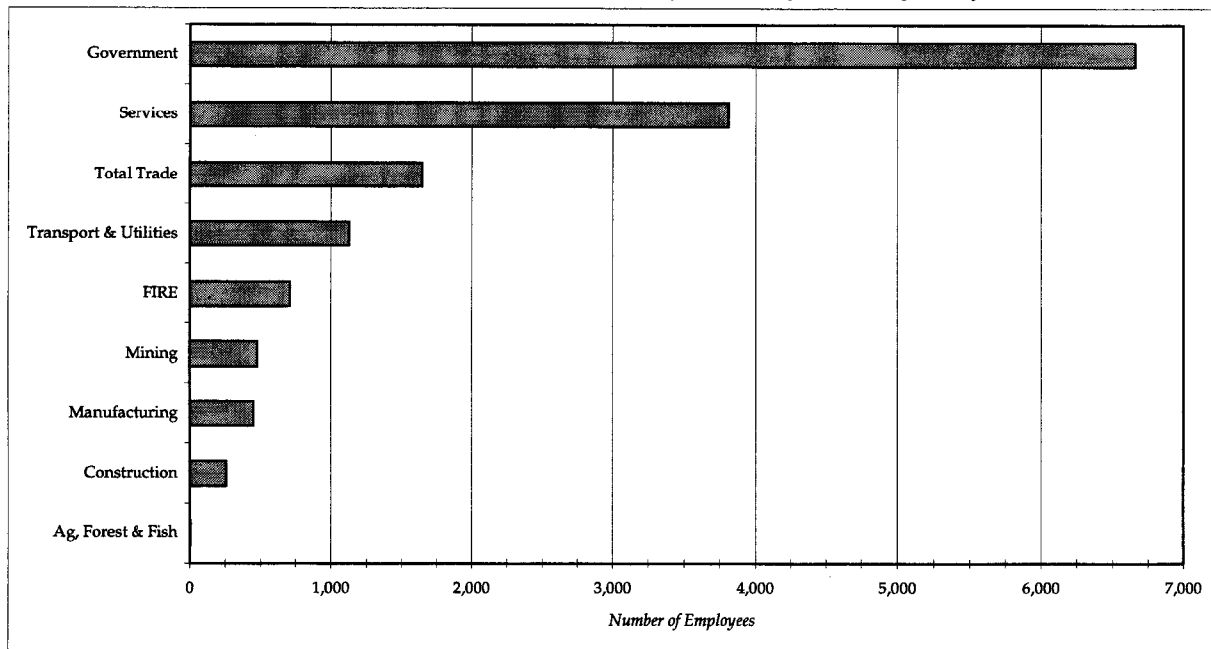
Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Although no dramatic changes are expected for the region's economy, significant increases in jobs, income and tax revenues would be envisioned if ANWR oil development and construction of a gas pipeline parallel to the existing oil pipeline become reality.

Northwest/Interior Region

This region, composed of Bethel, Nome, Northwest Arctic, Wade Hampton, and Yukon Koyukuk, is by far the largest and most sparsely settled region of Alaska. Government jobs predominate, with over 44 percent employed by the government sector. Other major employers include Native regional for-profit corporations, commercial fisheries and fish processing, and mining. The Red Dog Mine near Kotzebue, operated by Cominco, represents the region's largest private employer.

Figure 10
Northwest/Interior Region: Wage and Salary Employment by Major Sector, 1996



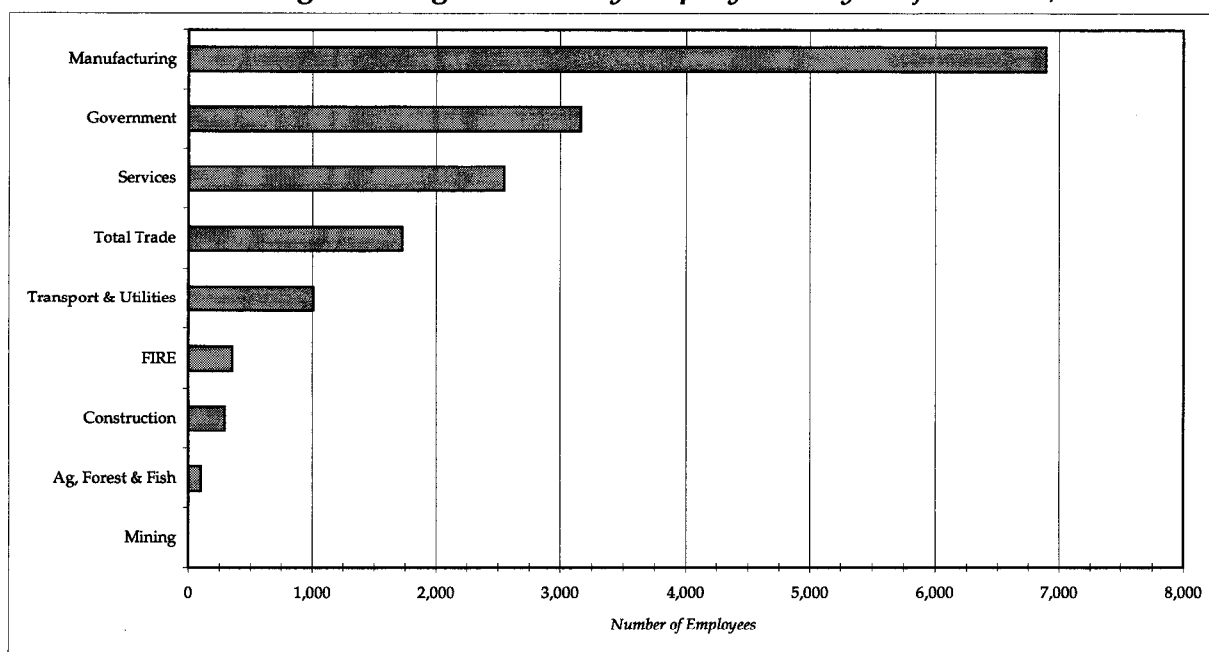
Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Southwest Region

The Southwest region, consisting of the Aleutians, Bristol Bay, Dillingham, Kodiak, and Lake & Peninsula, is at the center of the world's richest fishing grounds. Commercial fishing and fish processing are the primary sources of employment within the region, providing nearly 10,000 jobs through the year with a seasonal peak in July and August. Fleet services, such as fuel, repairs and maintenance, and wholesale trade and transportation, are important economic activities within the region. The fishing industry, focused on bottomfish, salmon, and crab, will continue to be the mainstay for the regional economy.

Figure 11
Southwest Region: Wage and Salary Employment by Major Sector, 1996



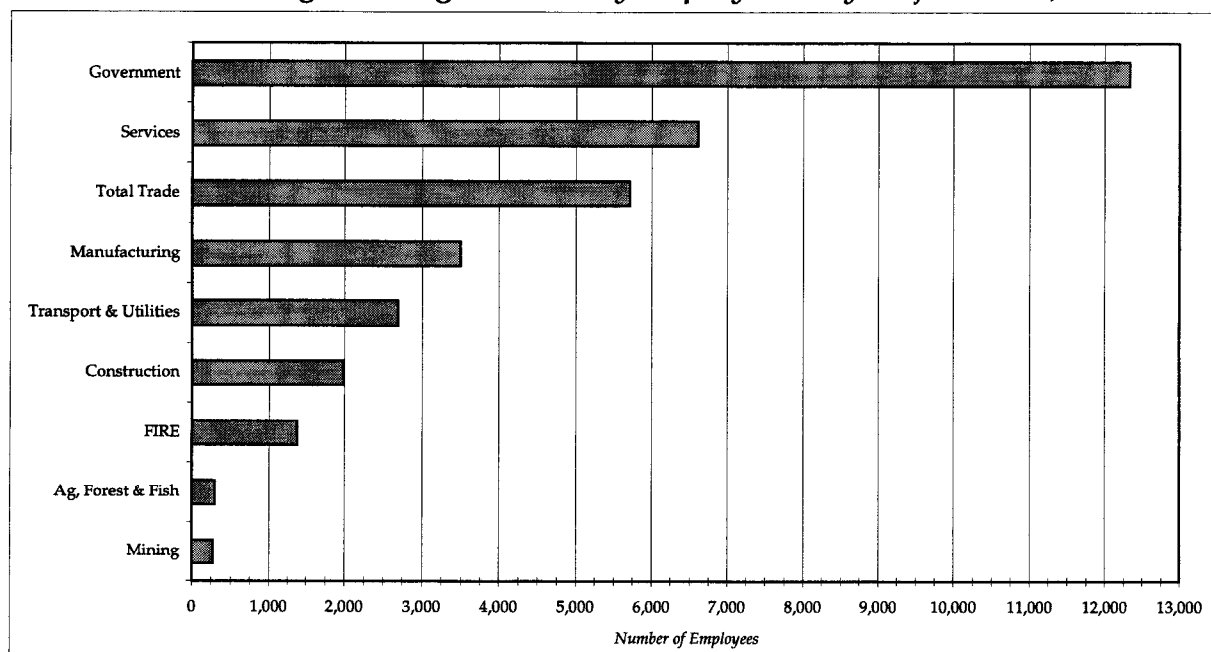
Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Southeast Region

Government, tourism, timber and wood processing, commercial fishing and seafood processing, mining, and transportation are primary employers in the Southeast region. With the capital located at Juneau, state government accounts for more than a third of all employment in the region. Tourism is a major industry; cruise ships on the Inside Passage bring over 300,000 visitors annually to the region.

Figure 12
Southeast Region: Wage and Salary Employment by Major Sector, 1996



Source: Alaska Department of Labor, Research & Analysis Division.

Note: FIRE = finance, insurance & real estate; total trade includes both wholesale and retail trade.

Socio Economic Variations Among Regions

Table 11 displays socio-economic conditions throughout the State of Alaska. By using data for Anchorage as a base level 100, a direct assessment can be made of comparative conditions in various areas of the state.

Personal Income

The Fairbanks, Gulf Coast, Northern, Southeast, and Southwest regions of Alaska each have per capita personal income levels comparable to Anchorage. There are wide variations within Southeast and Southwest depending on whether a location is a center of resource exports or depends on a subsistence economy. The Northwest/Interior region has incomes much lower than Anchorage because its economy is subsistence throughout.

Cost-of-Living

The Fairbanks, Gulf Coast, and Southeast regions of Alaska have a cost-of-living comparable to Anchorage. The Northern, Northwest/Interior, and Southwest regions have a cost-of-living that is 30-50 percent higher than Anchorage. Generally, the cost of food and transportation is less in Anchorage than elsewhere in the State. Due to lower residential land costs, the cost of housing in the Gulf Coast and Southeast is lower than in Anchorage and this offsets higher food and transportation costs. In the Northern, Northwest/Interior and Southwest, all costs including housing are higher due to the combination of remoteness and severe climatic conditions.

Purchasing Power

When per capita incomes are adjusted for cost-of-living, the resulting data shows average purchasing power – how far each dollar “goes”. Fairbanks, the Gulf Coast region, and urbanized portions of the Southeast enjoy purchasing power comparable to Anchorage. Elsewhere, only Bristol Bay matches the Anchorage level. Per capita purchasing power lags far behind Anchorage in the remainder of the Northern, Northwest/Interior, and Southwest regions.

Cost of Service Delivery

Closely paralleling the cost of living is the cost of delivering public services. The same factors of remoteness and severe conditions that make the cost-of-living high in the Northern, Northwest/Interior, and Southwest regions add costs to the delivery of services. The expense premium that is imposed in more remote parts of the state ranges from 108 percent of Anchorage costs on Kodiak Island to 150 percent in the North Slope region.

Table 11.
Socio-Economic Variations Among Regions
(Anchorage = 100)

<i>Region</i>	<i>Per Capita Income</i>	<i>Cost of Living</i>	<i>Purchasing Power</i>	<i>Cost of Service Delivery</i>
<i>Anchorage/Mat-Su</i>				
Anchorage	100	100	100	100
Matanuska-Susitna	67	103	65	100
<i>Fairbanks</i>				
Denali	85	111	76	112
Fairbanks-North Star	100	102	98	103
Southeast Fairbanks	74	111	67	111
<i>Gulf Coast</i>				
Kenai Peninsula	99	99	100	101
Valdez-Cordova	112	110	102	113
<i>Northern</i>				
North Slope	107	154	69	149
<i>Northwest/Interior</i>				
Bethel	64	137	47	139
Nome	64	140	46	138
Northwest Arctic	76	144	53	143
Wade Hampton	44	134	33	137
Yukon Koyukuk	69	130	53	134
<i>Southeast</i>				
Haines	103	105	98	103
Juneau	114	104	110	102
Ketchikan	122	100	122	103
Prince of Wales	73	86	85	108
Sitka	103	101	103	102
Skagway-Hoona	96	100	96	106
Yakutat	90	123	73	120
<i>Southwest</i>				
Aleutians East	101	139	73	134
Aleutians West	96	134	75	132
Bristol Bay	134	137	98	n/a
Dillingham	81	133	61	131
Kodiak Island	95	100	95	108
Lake & Peninsula	76	134	57	134

Source: Regional accounts, U.S. Bureau of Labor Statistics, 1997; School District Study: Regional Differentials, Alaska Department of Education, 1990.

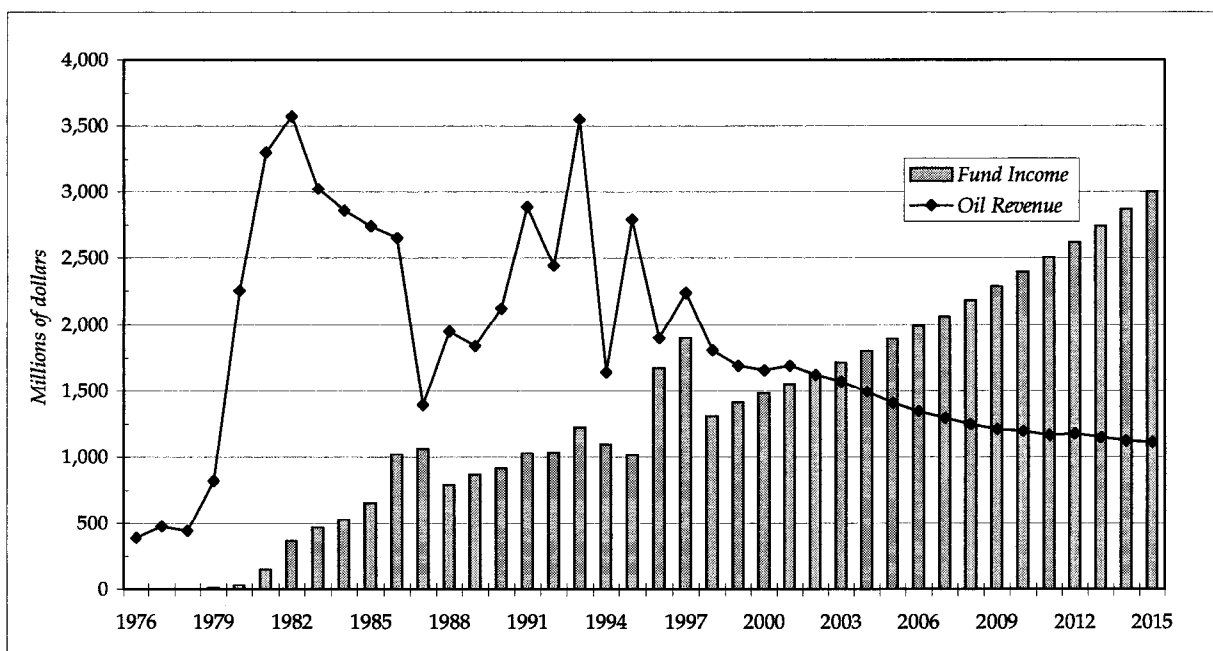
The Alaska Permanent Fund

The clearest and most direct impact on Anchorage - and all of Alaska - from economic activity in a peripheral region is the Alaska Permanent Fund. Its financing is based entirely on state revenues derived from North Slope oil production. The initial deposit of \$734,000 was made on February 28, 1977. As of June 30, 1997, the Fund was a \$22.1 billion asset.

The Fund was created by Alaska voters in November, 1976 through a constitutional amendment that set aside a portion of revenues generated by the North Slope's huge petroleum resource. Three years later in 1980, the Legislature created the Alaska Permanent Fund Corporation (APFC) as an independent entity to manage the Fund's growing assets and to separate the savings functions of the Fund from the spending functions of the state. By legislative mandate, the Fund must "be conservatively invested to safeguard its principal while maximizing its return within acceptable levels of risk".

In fiscal 1996, the Permanent Fund for the first time produced more earnings from its investment portfolio than the state's General Fund received in oil revenues. This milestone was due in part to the Fund's gains from a surging U.S. stock market and is not expected to be repeated for several years. However, it is a harbinger of the future. Annual oil revenues are expected to slowly decline while Fund assets accumulate and generate ever-larger earnings. (see Figure 13).

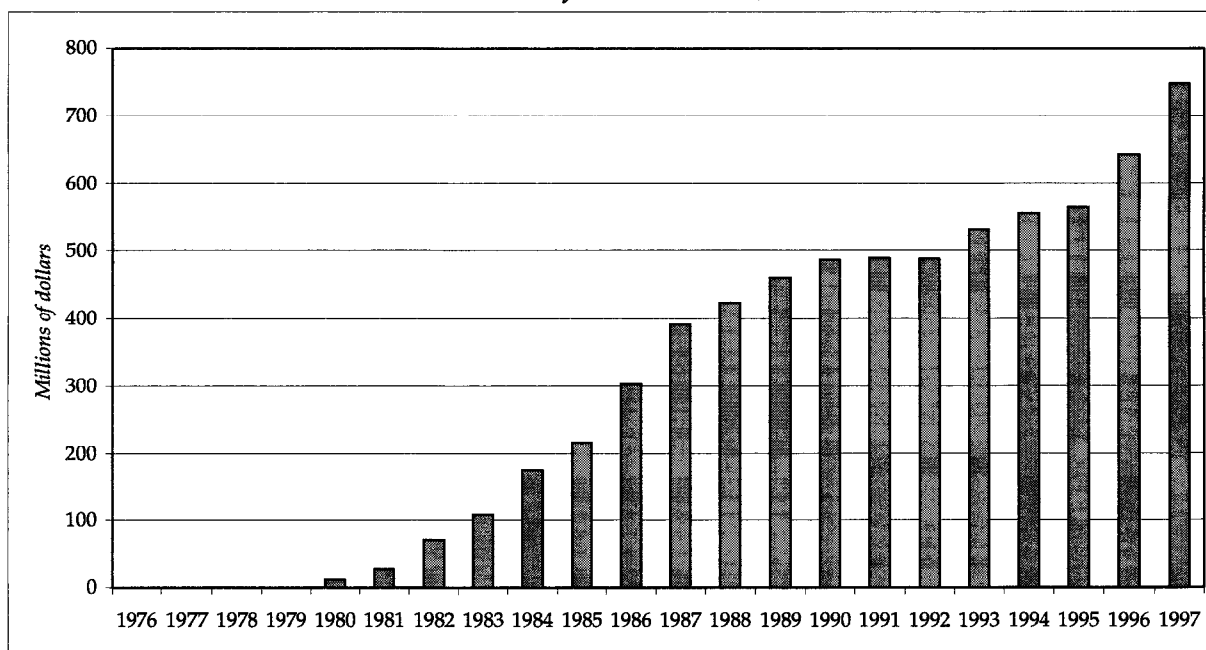
Figure 13
Alaska Permanent Fund Income and State Oil Revenue



Source: Alaska Permanent Fund Corporation, 1996 Annual Report.

The Fund's economic impact occurs in two ways. First, the Dividend Program distributes per capita payments to Alaska residents. Distributions are based on the Fund's average net income in the preceding five years divided by eligible population. During 1981-1996, a total of \$5.8 billion was distributed. At more than \$1000 per recipient, the 1996 distribution was \$643 million (Figure 14). This exceeds the total payroll of all but two Alaska industries: petroleum and the U.S. government.

Figure 14
Income Paid Out for Dividends, 1976-1997



Source: Alaska Permanent Fund Corporation, 1996 Annual Report.

The other source of Fund-related economic impact are policies to assure that Alaska-based entities are directly involved in the Fund's investment process. A "directed brokerage program" ensures that Alaska firms share in the commissions generated by the Fund's stock trades. The Fund's real estate portfolio is invested in Alaska properties when they generate rates of return comparable to out-of-state properties. On the fixed-income side, \$300 million is allocated to Alaska financial institutions for purchase of certificates of deposit which add to the capital available for loans to in-state businesses.

North Slope petroleum revenues are the primary source not only of dedicated state revenues for the Fund but are also of financing for state special appropriations and inflation-proofing. Since its inception the Fund has received five special legislative appropriations which constitute the single largest source of growth in principal to date. Two of these, totaling \$1.8 billion, occurred in 1996 and increased the Fund's principal

by 13%. Currently, \$5.8 billion in Fund principal (36%) is due to special appropriations, \$5.7 billion (35%) is due to dedicated state revenues, and \$4.6 billion (29%) is due to inflation-proofing. The latter is a provision designed to preserve the value of Fund assets on an inflation-adjusted basis by transferring a portion of General Fund income into the Permanent Fund.

In mailing the dividend checks for 1995, the APFC included an Alaska resident survey which generated the following information. Twenty-five percent of respondents said they intended to save the entire dividend, 33 percent said they would spend the entire amount and 42 percent planned some combination of spending and saving.

Both saving and spending the dividend benefit Alaska's economy. Savers' priorities included education, a rainy day fund, retirement and vacations. Of those who intended to spend all or part of the dividend, 76 percent said their spending of dividend dollars would be done within the state. Priority uses of spending included paying off bills, meeting day-to-day expenses, paying medical costs, and traveling in Alaska. Each of these expenses stimulates the Alaska economy.

Permanent Fund Economic Impact: The economic impact analysis estimates that each \$1 million dispersed in dividends supports 8.4 full-time jobs within the state. Six of those jobs are within the Anchorage/Mat-Su core region. When applied to the 1996 dividend of \$643 million, this ratio generates the equivalent of 5,383 jobs and \$146 million in labor earnings (i.e., wages and salaries and proprietors' income); 3,152 jobs are estimated to be supported in Anchorage/Mat-Su core region, the remainder of 2,231 jobs are supported within the periphery region. Jobs and earnings linked to the economic impact of the Permanent Fund dividend arise both directly through consumer spending and indirectly through job (and labor earnings) creation financed by dollars that dividend recipients have saved and invested.

The following three tables (Tables 12, 13, and 14) show Permanent Fund economic impacts statewide and in the core and periphery regions.

Table 12.
Statewide Alaska: Impacts of Permanent Fund Dividend

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	1.2	31	0.5	0.2
Mining, Total	8.9	12	1.4	4.1
Other mining	0.3	1	0.1	0.1
Oil & gas extraction	8.7	11	1.3	4.0
Construction	14.0	117	6.0	2.7
Manufacturing, Total	15.2	66	2.5	2.8
Durable manufacturing	1.1	11	0.3	0.1
Nondurable manufacturing	14.2	55	2.2	2.6
Transport & public utilities	36.9	210	9.0	9.7
Wholesale trade	14.7	151	5.8	3.0
Retail trade	85.3	2,125	46.1	14.2
Finance, insurance & real estate	108.1	467	10.2	60.2
Services	104.6	2,062	57.8	11.0
Government & gov't. enterprises, Total	18.2	142	6.6	3.3
Federal, civilian	5.2	83	3.1	0.5
State & local	13.0	60	3.5	2.8
TOTAL	407.2	5,383	146.0	111.0

Table 13.
Rest of Alaska: Impacts of Permanent Fund Dividend

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	0.5	11	0.2	0.1
Mining, Total	5.4	7	0.9	2.4
Other mining	0.2	1	0.1	0.1
Oil & gas extraction	5.2	6	0.8	2.4
Construction	7.0	59	3.2	1.3
Manufacturing, Total	10.1	27	1.2	1.7
Durable manufacturing	0.5	4	0.1	0.1
Nondurable manufacturing	9.7	23	1.1	1.6
Transport & public utilities	16.3	88	3.8	4.6
Wholesale trade	3.9	40	1.5	0.8
Retail trade	36.7	928	20.0	6.1
Finance, insurance & real estate	21.9	148	2.5	10.1
Services	43.3	852	24.0	4.4
Government & gov't. enterprises, Total	9.9	70	3.3	2.0
Federal, civilian	2.3	37	1.4	0.2
State & local	7.6	33	1.9	1.8
TOTAL	155.0	2,231	60.6	33.6

Table 14.
Anchorage/Mat-Su Core Region: Impacts of Permanent Fund Dividend

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	0.7	21	0.3	0.1
Mining, Total	3.5	4	0.5	1.6
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	3.5	4	0.5	1.6
Construction	7.0	58	2.8	1.4
Manufacturing, Total	5.1	39	1.2	1.1
Durable manufacturing	0.6	7	0.2	0.1
Nondurable manufacturing	4.5	32	1.0	1.0
Transport & public utilities	20.6	122	5.2	5.0
Wholesale trade	10.8	111	4.2	2.2
Retail trade	48.6	1,197	26.2	8.0
Finance, insurance & real estate	86.2	319	8.0	49.9
Services	61.3	1,210	33.9	6.5
Government & gov't. enterprises, Total	8.3	72	3.3	1.2
Federal, civilian	2.9	45	1.7	0.3
State & local	5.5	27	1.6	1.0
TOTAL	252.2	3,152	85.6	77.2

Economic Scenarios

Thus far, the study has dealt with data related to current realities. However, a further dimension is included in the evaluation of rural Alaska's impact on the Anchorage economy. A number of events on the near horizon carry a medium-to-high degree of probability that they will become future realities. Each of these events would augment the already strong links between Alaska's regions. While they involve some degree of uncertainty, these economic scenarios are essential to complete the picture of Alaska's economic partnership.

These scenarios illustrate the connective economic linkages between the Anchorage/Mat-Su core region and the rest of Alaska periphery. In each of the following scenarios, impact estimates are provided for the State of Alaska and its core and periphery regions.

Scenario I: Enhanced Petroleum Recovery

As recently as four years ago, the oil industry and the Alaska Oil & Gas Conservation Commission projected that North Slope production would decline 42% from its 1995 level of 1.55 million barrels per day to 900,000 barrels per day in the year 2001. Updated projections now call for production to fall until 1999 and then begin to rebound toward 1.3 billion barrels per day in 2001. What has changed?

The earlier projection has been revised upward by a combination of recent advances in oil-recovery technology, lower operating costs, and state laws encouraging development of fields that until now have been considered marginal.

New technology is being applied to squeeze more oil out of older fields at Prudhoe Bay and Kuparuk. At these fields, 125 new wells will be drilled in 1997, the most in any year since the early 1980s. Of the four to six billion barrels the industry believes can be added to Alaska oil reserves over the next ten years, 60 percent would come from application of enhanced recover techniques at existing fields.

Recoverable reserves will also be increased by drilling at West Sak, the North Slope's huge reservoir of heavy oil. It is expected to yield up to 300 million barrels of crude from one core area. Internal management efficiencies, cost-reduction technology, advanced recovery methods and an improved investment climate created by cooperation between the industry and the state contribute to make this effort feasible. The industry is also targeting "satellite" accumulations of untapped pools in and around fields currently in production. An example is the Tarn prospect, a pool of high quality crude adjacent to the Kuparuk field.

More intensive oil recovery at existing fields and development of new opportunities have boosted five-year capital spending plans by \$1 billion at BP and \$500 million at ARCO. An example is the 120-million barrel Badami deposit 35 miles east of Prudhoe Bay. It will be in production in late 1997 at a cost of \$300 million. Investments include a 26-mile pipeline where crude will connect with existing infrastructure at the Endicott field.

Scenario I Economic Impact: Oil production funds more than 80 percent of the state budget and is the foundation of Alaska's economy. The commitment of North Slope producers to a goal of "No Decline After '99" represents an important shift away from projections that the sector would diminish in importance. Combined with the proposed gas pipeline (see below), this suggests a high-level petroleum presence will be sustained in the economy.

In total, ARCO and BP believe reserves from dozens of satellites on the North Slope could hold one billion barrels of crude. Tarn, another field, could contain as much as 200 million barrels. Using a ratio of 55 cents per barrel in taxes and royalties for state and local governments in Alaska, Tarn would yield state and local revenues of over \$100 million, with \$400 million added by other satellite fields. The same ratio generates revenues of \$750 million from heavy oil recovery at new fields and \$1.2-1.8 billion from enhanced recovery at existing fields.

The impact of an enhanced petroleum recovery program, assuming that it will add 400,000 barrels of crude oil production, that the price of oil would be roughly \$15 per barrel, and the enhanced recovery program is valued at \$2.20 billion annually, shown in Tables 15, 16, and 17 below.

Table 15.
Statewide Alaska: Impacts of Enhanced Petroleum Recovery Program

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. Services, forestry, fisheries	2.5	94	1.5	0.1
Mining, total	2,322.9	2,923	349.3	1,077.6
Other mining	0.5	2	0.2	0.1
Oil & gas extraction	2,322.4	2,921	349.1	1,077.5
Construction	434.3	3,959	290.1	70.2
Manufacturing, total	29.5	155	5.8	4.6
Durable manufacturing	2.9	29	0.9	0.3
Nondurable manufacturing	26.6	126	4.8	4.3
Transport & public utilities	69.4	421	16.9	16.8
Wholesale trade	19.9	205	7.8	4.1
Retail trade	77.5	1,933	41.6	12.7
Finance, insurance & real estate	313.2	1,722	20.2	173.0
Services	133.1	2,603	72.2	14.0
Government & gov't enterprises, total	31.0	221	10.3	6.3
Federal, civilian	7.2	116	4.2	0.9
State & local	23.8	105	6.1	5.4
TOTAL	3,433.3	14,236	815.8	1,379.4

Table 16.
Rest of Alaska Periphery Region: Impacts of Enhanced Petroleum Recovery Program

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. Services, forestry, fisheries	0.8	29	0.5	0.1
Mining, total	1,382.6	1,740	207.9	641.3
Other mining	0.5	2	0.2	0.1
Oil & gas extraction	1,382.1	1,738	207.8	641.2
Construction	416.8	3,814	283.2	66.8
Manufacturing, total	19.7	66	2.9	2.6
Durable manufacturing	1.5	13	0.4	0.2
Nondurable manufacturing	18.2	53	2.5	2.5
Transport & public utilities	31.1	175	7.3	8.4
Wholesale trade	5.3	55	2.1	1.1
Retail trade	33.2	842	18.0	5.5
Finance, insurance & real estate	108.4	682	6.4	57.9
Services	52.7	1,032	28.6	5.4
Government & gov't enterprises, total	17.2	111	5.3	3.8
Federal, civilian	3.3	52	1.9	0.4
State & local	13.9	59	3.4	3.4
TOTAL	2,067.8	8,545	562.1	792.9

Table 17.
Anchorage/Mat-Su Core Region: Impacts of Enhanced Petroleum Recovery Program

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	1.7	65	1.1	0.1
Mining, total	940.4	1,183	141.4	436.3
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	940.3	1,183	141.4	436.3
Construction	17.5	145	7.0	3.4
Manufacturing, total	9.8	89	2.8	2.0
Durable manufacturing	1.4	16	0.5	0.1
Nondurable manufacturing	8.4	73	2.3	1.8
Transport & public utilities	38.2	246	9.6	8.5
Wholesale trade	14.6	150	5.7	3.0
Retail trade	44.2	1,091	23.6	7.2
Finance, insurance & real estate	204.8	1,039	13.8	115.1
Services	80.4	1,571	43.7	8.6
Government & gov't enterprises, total	13.9	110	5.0	2.5
Federal, civilian	4.0	64	2.3	0.5
State & local	9.9	46	2.7	2.0
TOTAL	1,365.5	5,690	253.6	586.5

Scenario II: The Trans-Alaska Gas System

The Trans-Alaska Gas System (TAGS) is a proposal by Yukon Pacific Corporation, an Anchorage-based business unit of CSX Corporation. The TAGS project would include a gas-conditioning plant on the North Slope and an 800-mile, 42 inch diameter buried pipeline paralleling the existing Trans-Alaska Pipeline System (TAPS) used to transport petroleum from Prudhoe Bay to Valdez.

The primary market served by TAGS would be large electric and gas utilities in Japan, South Korea and Taiwan. The economic rationale for the project is grounded in projections of East Asia demand for natural gas. Soon after the year 2000, serving these markets will require bringing at least one major new supplier on line.

Yukon-Pacific Corporation has secured or satisfied the needed legal approval and requirements to export North Slope natural gas to Asia, including a completed project-wide Final Environmental Impact Statement from twenty-one federal and state agencies, and authorization from the President of the U.S. and the Department of Energy to market Alaska-produced Liquefied Natural Gas (LNG) in Asia. Government authorities have also issued specific approvals for pipeline corridor right-of-way and for construction of the port facility at Anderson Bay near Valdez.

During the first half of the 1990s, definitive progress on the TAGS project was slowed by complicating factors. Other extensive natural gas resources that might serve East Asia are located in Indonesia, Australia, New Guinea, Oman, Qatar, Yemen and the Soviet Far East (Sakhalin). Several companies operating in Alaska also hold reserves in the Middle East and Southeast Asia, making it difficult to predict their priorities in developing resources to serve specific markets.

One central issue is state policy toward oil and gas taxation. TAGS proponents have argued that a project of this magnitude requires stable planning assumptions, including the portion of income that must be set aside for state taxes. Also, since the pipeline crosses multiple jurisdictions, tax policy must assure uniformity at the local level.

There has been forward movement. In 1997, memoranda of understanding were signed between the Governor of Alaska, Yukon Pacific, and ARCO, BP, Exxon, and Phillips Petroleum to work together on gas pipeline issues including state fiscal policy impacts, project cost minimization, and hiring of Alaskans on the project. A task force charged with finding ways to produce and sell North Slope natural gas was appointed to address these issues and report early in 1998.

Yukon-Pacific enjoys three advantages over potential alternative sources. First, proven reserves and established gas handling facilities on the North Slope. Second, trained experienced resident workforce in place to construct and operate the system. Third, the geo-political stability of Alaska as part of the United States.

Having secured the necessary environmental and construction permits, Yukon Pacific's forward movement on TAGS now depends on negotiating long-term sales agreements with North Slope producers of natural gas and purchase agreements with buyers who will sell to final consumers in Asia. These agreements are crucial to project financing.

Scenario II Economic Impact: Yukon-Pacific has commissioned several independent studies on the construction of TAGS. The latest cost estimate, which incorporates savings through design changes, is \$13.3 billion. Including detailed engineering and design, the project is expected to take seven years to build. It would employ a labor force of 10,000-12,000 direct contract workers receiving total earnings of \$3.5 - \$4.5 billion during the construction phase.

These numbers compare with the \$22.5 billion total spent on North Slope oil development in then-current dollars from 1980 through 1994. If the same Alaska-to-U.S. ratio held for TAGS, the state's share related to construction of the gas pipeline would be \$2.93 billion. During operation, a payroll of \$25-30 million a year would support 600 direct employees.

What are the statewide and regional impacts related to building the Trans-Alaska Gas System? The Trans-Alaska Gas System represents an estimated \$2.2 billion in-state expenditure by Yukon Pacific Corporation. As in the case of the enhanced petroleum recovery program, both the Anchorage/Mat-Su core region and the periphery clearly benefit from the infusion of capital in constructing the gas pipeline.

Table 18.
Statewide Alaska: The Trans-Alaska Gas System

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	3.5	123	2.0	0.3
Mining, total	22.3	29	3.4	10.2
Other mining	0.5	1	0.2	0.1
Oil & gas extraction	21.8	27	3.3	10.1
Construction	2,846.2	25,856	1,315.4	816.5
Manufacturing, total	46.3	229	8.3	7.3
Durable manufacturing	8.8	85	2.7	1.1
Nondurable manufacturing	37.5	144	5.7	6.2
Transport & public utilities	92.8	618	23.4	22.0
Wholesale trade	45.0	464	17.7	9.3
Retail trade	197.8	4,825	107.6	33.4
Finance, insurance & real estate	228.5	969	22.8	126.5
Services	394.4	6,962	212.2	40.6
Government & gov't enterprises, total	37.4	310	14.3	6.1
Federal, civilian	12.3	193	7.5	1.0
State & local	25.1	117	6.8	5.1
TOTAL	3,914.3	40,384	1,727.0	1,072.0

Table 19.
Rest of Alaska Periphery Region: The Trans-Alaska Gas System

<i>Sector</i>	<i>Industry</i>	<i>Employment</i>	<i>Labor</i>	<i>Other</i>
	<i>Output</i> (millions \$)		<i>Income</i> (millions \$)	<i>Value Added</i> (millions \$)
Ag. Services, forestry, fisheries	1.2	40	0.7	0.1
Mining, total	13.4	18	2.1	6.1
Other mining	0.5	1	0.2	0.1
Oil & gas extraction	12.9	16	1.9	6.0
Construction	1,834.6	16,771	853.6	529.8
Manufacturing, total	29.6	117	4.7	4.2
Durable manufacturing	4.8	50	1.5	0.4
Nondurable manufacturing	24.8	67	3.1	3.8
Transport & public utilities	49.6	261	14.5	10.3
Wholesale trade	12.0	124	4.7	2.5
Retail trade	84.2	2,091	46.1	14.2
Finance, insurance & real estate	43.1	230	6.5	18.0
Services	146.2	2,422	84.0	9.7
Government & gov't enterprises, total	20.0	162	7.1	3.8
Federal, civilian	5.5	49	3.4	0.5
State & local	14.5	113	3.7	3.4
TOTAL	2,233.9	22,235	1,023.8	598.8

Table 20.
Anchorage/Mat-Su Core Region: The Trans-Alaska Gas System

<i>Sector</i>	<i>Industry</i>	<i>Employment</i>	<i>Labor</i>	<i>Other</i>
	<i>Output</i> (millions \$)		<i>Income</i> (millions \$)	<i>Value Added</i> (millions \$)
Ag. Services, forestry, fisheries	2.3	83	1.3	0.1
Mining, total	8.8	11	1.3	4.1
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	8.8	11	1.3	4.1
Construction	1,011.7	9,085	461.8	286.7
Manufacturing, total	19.2	134	3.7	3.1
Durable manufacturing	4.0	54	1.2	0.2
Nondurable manufacturing	15.2	81	2.5	2.8
Transport & public utilities	43.2	357	8.8	11.7
Wholesale trade	33.0	340	13.0	6.7
Retail trade	113.7	2,734	61.5	19.1
Finance, insurance & real estate	185.5	739	16.3	108.5
Services	248.2	4,540	128.2	30.9
Government & gov't enterprises, total	17.4	64	7.2	2.3
Federal, civilian	6.8	59	4.1	0.6
State & local	10.6	4	3.1	1.7
TOTAL	1,682.9	18,086	703.2	473.2

Scenario III: ANWR Development

Sixty-five miles east of Prudhoe Bay is an area that various U.S. Department of Interior studies say has a 19%-42% prospect of containing 3 to 9 billion barrels of recoverable oil reserves. At peak production, this field alone would account for 33% of U.S. output.

The site is located on the coastal plain portion of the Arctic National Wildlife Refuge (ANWR). Opening the area to oil production has become highly politicized. Proponents note that the "footprint" for the field would be contained within 12,000 acres (18.75 square miles), an area less than 1% of the ANWR coastal plain. Supporters of ANWR development include the Alaska Federation of Natives, oil producers and 75% of Alaskans responding to public opinion polls. Opponents include environmental organizations in the Lower 48 and the Gwich'in native people, whose subsistence lifestyle is based on the resident caribou herd.

The national economic argument for opening ANWR to oil exploration and development begins with the fact that current petroleum imports of 9 million barrels per day account for over 50% of U.S. consumption and could climb to 65% early in the next century, absent new domestic sources of production. This level of imports generates nearly half the U.S. balance-of-payments deficit in world trade.

Recently, a 100 million barrel discovery was announced at Sourdough, adjacent to the western border of ANWR, and exploration is planned at Camden Bay off-shore from the coastal plain. This activity is part of continued development of smaller fields east of Prudhoe Bay and west of ANWR. Rather than focusing on the next "big hit", this strategy focuses on developing a diverse mix of known prospects.

The economics are at times complex since some fields cannot be developed until the infrastructure of neighboring fields is in place. Yet, proven reserves are significant and production has begun on some portions of this resource. ANWR has even greater potential. It would likely be a major force in bending oil production forecasts upward, beyond recent positive revisions.

Scenario III Economic Impact: The benefits of ANWR development to the state economy and state revenues would be both short-term (the construction phase) and the long-term (the production phase). In this scenario, the focus is estimating the economic impacts during a peak production year. Estimated at providing one-third of total U.S. crude oil output, ANWR production alone would represent the equivalent of another entire petroleum industry within Alaska.

As seen in the accompanying tables, the economic impact of opening the Arctic National Wildlife Refuge to oil and gas development would be very large. Clearly, the development of ANWR would be a boon for Alaska. The periphery region, particularly the North Slope Borough, would capture the majority of the economic benefits

including nearly two-thirds of the additional employment of 19,414 workers. The Anchorage/Mat-Su regional economy would also benefit enormously from the oil development in ANWR.

Table 21.
Statewide Alaska: Oil & Gas Extraction Impacts in Arctic National Wildlife Refuge

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	3.5	128	2.1	0.2
Mining, total	3,167.6	3,986	476.3	1,469.4
Other mining	0.7	3	0.2	0.2
Oil & gas extraction	3,166.9	3,983	476.1	1,469.3
Construction	592.2	5,399	395.7	95.7
Manufacturing, total	40.2	213	8.1	6.0
Durable manufacturing	3.9	40	1.5	0.2
Nondurable manufacturing	36.3	173	6.6	5.9
Transport & public utilities	94.6	573	23.0	23.0
Wholesale trade	27.1	279	10.6	5.6
Retail trade	105.6	2,636	56.7	17.3
Finance, insurance & real estate	427.1	2,348	27.5	235.8
Services	181.5	3,550	98.5	19.1
Government & gov't enterprises, total	42.3	302	14.0	8.6
Federal, civilian	9.9	158	5.7	1.2
State & local	32.5	144	8.4	7.4
TOTAL	4,681.8	19,414	1,112.6	1,880.8

Table 22.
Rest of Alaska: Oil & Gas Extraction Impacts in Arctic National Wildlife Refuge

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. Services, forestry, fisheries	1.1	39	0.7	0.1
Mining, total	2,202.0	2,773	331.1	1,021.4
Other mining	0.7	4	0.2	0.2
Oil & gas extraction	2,201.3	2,769	330.9	1,021.3
Construction	568.3	5,201	386.1	91.1
Manufacturing, total	26.8	90	4.0	3.6
Durable manufacturing	2.0	18	0.6	0.2
Nondurable manufacturing	24.8	72	3.4	3.4
Transport & public utilities	42.4	238	10.2	16.8
Wholesale trade	7.2	75	2.8	1.5
Retail trade	45.3	1,148	24.5	7.5
Finance, insurance & real estate	147.9	931	8.7	78.9
Services	71.9	1,407	39.0	7.4
Government & gov't enterprises, total	23.4	152	7.2	5.2
Federal, civilian	4.4	71	2.5	0.6
State & local	19.0	81	4.7	4.7
TOTAL	3,136.5	12,054	814.4	1,233.4

Table 23.
Anchorage/Mat-Su: Oil & Gas Extraction Impacts in Arctic National Wildlife Refuge

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	2.3	89	1.4	0.1
Mining, total	965.6	1,215	145.2	448.0
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	965.6	1,215	145.1	448.0
Construction	23.9	198	9.5	4.7
Manufacturing, total	32.2	127	4.0	2.5
Durable manufacturing	1.9	24	0.9	0.0
Nondurable manufacturing	30.3	104	3.2	2.5
Transport & public utilities	67.9	335	13.3	25.3
Wholesale trade	19.9	205	7.8	4.1
Retail trade	60.3	1,488	32.2	9.9
Finance, insurance & real estate	279.2	1,417	19.1	156.6
Services	109.6	2,143	59.5	11.7
Government & gov't enterprises, total	18.9	150	6.8	3.4
Federal, civilian	5.4	87	3.1	0.7
State & local	13.5	63	3.7	2.7
TOTAL	1,579.9	7,367	298.8	666.2

Scenario IV: The Alaska Seafood Center

The Alaska Seafood Center, Inc. (ASC) is a notable example of the economic partnership between rural Alaska and the Anchorage/Mat-Su region. Ground was broken near the Anchorage International Airport in June for the first large-scale, value-added, high volume fish processing plant in Alaska. The high-tech manufacturing facility is expected to produce 100 million pounds of prepared seafood annually from pollock, cod, salmon, halibut, and flatfish for shipment to domestic and overseas markets. ASC's state-of-the-art processing line equipment will be suitable for coating, saucing, and topping prepared food entrees, surimi products, kamaboko, and frozen and fresh portions of salmon, halibut and groundfish.

Presumably, much if not all of the fish will come from Bristol Bay and Dutch Harbor in Alaska's Southwest region. Company officials say they considered Anchorage to be the only practical location in Alaska for the facility because it must be near a major transportation hub and in a community large enough to supply hundreds of year-round workers and to attract experienced executives.

Scenario IV Economic Impact: The Alaska Industrial Development Export Authority (AIDEA) will provide \$48 million in funding for the \$125 million project, which will employ about 450 direct year-round jobs at the Anchorage facility and 350 additional indirect jobs in related business sectors including transportation. There will also be nearly \$100 million in construction spending and jobs. The facility will strengthen the seafood industry in Alaska by enhancing the cold storage and freight forwarding capacities in Anchorage. Over the long term it is anticipated that ASC will pay more than \$9 million per year to the State in fish taxes and in excess of \$1.9 million annually in real estate taxes to the Municipality of Anchorage.

The ASC complex will include a 40 million pound cold storage adjacent to the processing plant. Americold Corp., the largest cold storage company in the country, will construct, own and operate the plant. While ASC will be its primary customer, the cold storage will be a public facility available to other users.

This scenario explicitly accounts for the impacts associated with operating the proposed Alaska Seafood Center. Under the construction phase, the principal beneficiary is the core region of Anchorage/Mat-Su where the facility is to be located. In addition, benefits of the construction spill over into other regions of Alaska.

Table 24.
Statewide Alaska: Operation of Alaska Seafood Center

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	5.7	110	3.2	1.0
Mining, total	0.9	1	0.1	0.4
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	0.9	1	0.1	0.4
Construction	1.6	13	0.7	0.3
Manufacturing, total	127.0	862	26.8	11.2
Durable manufacturing	0.1	0	0.0	0.0
Nondurable manufacturing	126.9	862	26.8	11.2
Transport & public utilities	8.9	73	2.3	1.8
Wholesale trade	7.3	75	2.9	1.5
Retail trade	4.4	110	2.4	0.7
Finance, insurance & real estate	6.5	29	0.6	3.6
Services	7.4	142	4.0	0.8
Government & gov't enterprises, total	1.4	9	0.4	0.3
Federal, civilian	0.3	5	0.2	0.0
State & local	1.0	4	0.2	0.3
TOTAL	171.0	1,424	43.6	21.5

Table 25.
Rest of Alaska: Operation of Alaska Seafood Center

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. Services, forestry, fisheries	5.2	95	3.1	0.9
Mining, total	0.6	1	0.1	0.3
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	0.5	1	0.1	0.2
Construction	0.2	7	0.4	0.1
Manufacturing, total	5.3	32	1.1	0.5
Durable manufacturing	0.0	0	0.0	0.0
Nondurable manufacturing	5.3	32	1.0	0.5
Transport & public utilities	3.9	31	1.6	1.3
Wholesale trade	1.9	20	0.7	0.4
Retail trade	1.9	48	1.0	0.3
Finance, insurance & real estate	1.4	9	0.2	0.6
Services	2.9	66	1.6	0.3
Government & gov't enterprises, total	0.8	5	0.2	0.2
Federal, civilian	0.2	1	0.1	0.0
State & local	0.6	4	0.1	0.1
TOTAL	24.0	312	9.9	5.0

Table 26.
Anchorage/Mat-Su: Operation of Alaska Seafood Center

<i>Sector</i>	<i>Industry Output (millions \$)</i>	<i>Employment</i>	<i>Labor Income (millions \$)</i>	<i>Other Value Added (millions \$)</i>
Ag. services, forestry, fisheries	0.5	15	0.2	0.1
Mining, total	0.4	0	0.1	0.2
Other mining	0.0	0	0.0	0.0
Oil & gas extraction	0.4	0	0.1	0.2
Construction	1.4	7	0.3	0.2
Manufacturing, total	121.6	830	25.8	10.6
Durable manufacturing	0.1	0	0.0	0.0
Nondurable manufacturing	121.5	830	25.8	10.6
Transport & public utilities	5.0	42	0.7	0.4
Wholesale trade	5.3	55	2.1	1.1
Retail trade	2.5	62	1.4	0.4
Finance, insurance & real estate	5.1	20	0.5	2.9
Services	4.5	76	2.4	0.5
Government & gov't enterprises, total	0.6	3	0.2	0.1
Federal, civilian	0.2	2	0.1	0.0
State & local	0.4	1	0.1	0.1
TOTAL	147.0	1,109	33.7	16.5

CONCLUSION AND SUMMARY

The economy of every state is bound together by complex linkages that are seldom fully understood even by those who benefit from them. Each region within a state has a tendency to think of itself as autonomous and independent. Yet, analysis reveals that a complex network of supplier, producer, and consumer relationships binds regions together and provides a higher level of economic activity than each of them would enjoy in isolation.

In Alaska, these factors are particularly strong. Outlying areas of the state benefit from high-quality goods that are produced in the Anchorage core and from specialized services that are available only in Anchorage. This pattern is typical of all states. What is unique to Alaska is the proportion of benefits Anchorage receives from the periphery. By a ratio of eight to one, more of its residents commute to the rest of Alaska for jobs and income than commute from the periphery into the core. This is opposite to the pattern in most states.

An even greater benefit to Anchorage is its role as the administrative center and the staging area for resource industries statewide. Anchorage residents holding jobs related to this role do not commute from the core area, yet their incomes depend on demand from the rest of Alaska for Anchorage-based goods and services.

The jobs of 25,000 Anchorage-area residents - one job in every seven - are supported directly or indirectly by the economic vitality in the rest of Alaska. As described, this happens in three ways: commuting to on-site work in the rest of Alaska, demand from businesses located in rural areas for vital production inputs from Anchorage-based firms, and consumer purchases of goods and services made in Anchorage by residents of the Alaska periphery.

Anchorage exports a large portion of its output - one-third of the total - and 60 percent of this goes elsewhere in the state. The net effect of linkages to rural Alaska is a \$2.4 billion favorable "balance of trade" with the rest of the state: \$3.4 billion in Anchorage earnings and sales, offset by an outflow of less than \$1 billion in the reverse direction. Thus, the economic ties between the two regions are not only strong but are highly beneficial to Anchorage.

A linked economy profits Anchorage and serves Alaska. With continued good fortune, a cooperative spirit, and a strategy based on realism, these beneficial ties can and should continue into the future.

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Appendix I

THE ALASKA IMPLAN INPUT-OUTPUT SYSTEM: A BRIEF DISCUSSION

INTRODUCTION

Inter-industry relationships were first described in 1753 by Francois Quesnay. Wassily Leontief developed the concept of multipliers from input-output tables, and received the Nobel prize in 1973 for his work.

Input-output analysis is a method of examining relationships within an economy between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. Mathematical formulae allow one to examine the effects of a change in one or several activities on an entire economy (impact analysis).

A primary input-output study is based on data collected directly from industries. Examples include the United States Benchmark Study of Input-Output accounts and the Washington State Input-Output Study (last benchmark was 1972). Primary studies are not common due to the high cost and time involved.

Secondary input-output studies rely on data collected from other sources to construct the accounts. The inter-industry transaction information (e.g., purchases and sales) generally comes from some other primary study. IMPLAN is an example of a secondary input-output modeling system.

There are two phases in input-output analysis:

- *Descriptive modeling*
- *Predictive modeling*

A *descriptive model* includes information about economic interactions known as regional economic accounts. These tables describe a local economy in terms of the flow of dollars from purchasers within the region.

Trade flows are also part of the descriptive model. They describe the movement of goods and services between a region and the outside world (regional imports and exports).

The initial IMPLAN database details all purchases including imported goods and services. When regional economic accounts are created, imports to the region are

removed, allowing the examination of local inter-industry transactions and final purchases.

By adding social accounting data, non-industrial transactions such as payment of taxes by businesses and households can be examined. Social accounting data includes tax collection by governments and payments to households and businesses.

Essentially, input-output accounting describes the flow of commodities from producers to intermediate and final consumers. Social accounting matrices (SAMs) show the flow of money between institutions. Both input-output accounts and social accounting matrices are part of the descriptive model.

The *predictive model* utilizes regional economic accounts that are used to construct local-level multipliers. Multipliers describe the response of the economy to a stimulus (a change in demand or production).

Purchases for final use (final demand) drive an input-output model. Industries producing goods and services for consumption purchase goods and services from other producers, who in turn, purchase goods and services. Indirect purchases (or indirect effects) continue until leakages from the region (e.g., imports, wages, taxes, profits) stop the cycle.

The indirect effects and the effects of increased household spending (induced effects) can be mathematically derived as sets of multipliers. The derivation is called the Leontief inverse. The resulting sets of multipliers describe, for example, the change of output for each industry caused by a one dollar change in final demand for any given industry.

Transaction accounts

The input-output analysis framework is similar to financial accounting that tracks purchases of and expenditures on goods and services in dollars. Input-output accounting traces the flow of dollars between businesses and between businesses and final consumers.

An input-output accounting framework can be illustrated using a classic financial accounting T-accounts which include receipts (income from sales to industries, sales to institutions, and exports) and expenditures (expenses for purchases of local and imported goods and services, investment, payroll, taxes, and distributed and retained profits).

On one side are receipts, including income from sales of goods and services to industries and institutions. Institutions are consumers and may be households, schools, or government agencies. (In this framework, exports and investment are found under institutions.)

On the other side of the T-account are expenditures made by industries for goods and services to produce other goods and services. Like any double-entry bookkeeping system, receipts must balance the expenditures. This is a fundamental convention of input-output accounting. Across the entire economy, businesses and consumers receive income and make expenditures. In a balanced set of accounts, all receipts equal all expenditures.

Industry versus Commodity

The collection of businesses producing and purchasing goods and services are called industries. The goods and services themselves are called commodities. Industries derive their standard names from the primary commodity they produce (determined by value). But industries often produce secondary commodities or by-products. IMPLAN uses a commodity/industry economic accounting framework.

Input-Output Accounting

Within the IMPLAN framework there are several tables showing income and expenditures as the flow of goods and services in dollars.

The use table details the dollar value of goods and services purchased by each industry to use in its production process. A column is a single industry, the rows are the commodities and the units are dollars.

The value added table details payments made by each industry to workers, taxes, interest, profits, and other income; one column for each industry.

The make table gives the value of each commodity or service produced by each industry. It is possible for a single industry to produce more than one category of goods and services. In this table, a row is an industry and a column is a commodity and the units are dollars.

The final demand table consists of purchases of goods and services for final consumption. Each row is a commodity; the columns are the final demand sectors and the units are dollars.

Other tables produced in the IMPLAN framework are:

The absorption table which is a tabular presentation of coefficients from the use table derived by dividing each element of the use table by the respective industry's total dollar output. An industry will use a number of commodities to produce its products. The absorption table shows the proportions of each commodity it uses. Each column is an industry's production function and shows the proportions of commodities used to produce each dollar of output.

The byproducts table is also a coefficients table derived from the make table by dividing each element by the make table row (industry) totals. Each industry can produce more than one commodity. The byproducts table shows the percentage of an industry's total output that each commodity represents.

The market shares table is yet another coefficients table derived from the make table by dividing each make element by the make column (commodity) total. Since some industries produce more than one commodity, several different industries can be producing the same commodity. The market shares table shows what percentage of the total production of a commodity is produced by each industry.

Trade Flows

Trade flow assumptions are part of the input-output descriptive model from which multipliers are derived. IMPLAN allows you to choose which assumption it will use to estimate regional trade flows.

Trade flows describe the movement of goods and services between a region and the outside world (regional imports and exports). There are several methods of estimating how much of the local production of a commodity will be used to supply local demand and consequently how much will be exported out of the region. These methods in IMPLAN are: regional purchase coefficients, supply/demand pooling, and location quotients.

Multipliers

Input models are driven by final consumption (or final demand). Industries respond to meet demands directly or indirectly (by supplying goods and services to industries responding directly). Each industry that produces goods and services generates demands for other goods and services and so on, round by round. These iterations are described by three different multipliers that have been developed for predictive modeling.

Multipliers apportion the effects of stimuli on economic activity into three components:

Direct effects are the changes in the industries to which a final demand change was made.

Indirect effects are the changes in inter-industry purchases as they respond to new demands from the directly affected industries.

Induced effects reflect changes in spending from households as income/population increases or decreases due to the changes in production.

There are three different multipliers commonly developed for predictive modeling, the Type I, Type II, and Type III.

The *Type I multiplier* measures direct and indirect effects of a change in economic activity. It captures inter-industry effects only; that is, industries buying from local industries.

The *Type II multiplier* captures direct and indirect effects. In addition to inter-industry effects, the Type II also takes into account the income and expenditures of households, that are treated as industries. This internalizes the household sector (also called "closing the model with respect to households"), including the induced, or household spending, effects.

The *Type III multiplier* uses an employment-based calculation of induced effects. It assumes full employment and therefore, each job adds or subtracts population with the associated expenditures per person.

Key assumptions

Input-output modeling is based on several assumptions

Constant returns to scale. Since production functions for each industry are considered linear, when additional output is required, all inputs increase proportionately.

No supply constraints. Supplies are unlimited; an industry has unlimited access to input materials and its output is limited only by the demand for its products.

A fixed commodity input structure. Price changes do not cause a firm to buy substitute goods. Changes in the economy will affect the industry's output but not the mix of commodities and services it requires to make its products.

Homogeneous sector output. Proportions of all commodities produced by an industry remain the same, regardless of total output. An industry won't increase output of one product without proportionately increasing the output of all its other products.

Brief History of IMPLAN

Creating regional input-output models requires a tremendous amount of data. The costs of surveying industries within each region to derive a list of commodity purchases (production functions) is prohibitive. IMPLAN was developed as a cost-effective means to develop regional input-output models. IMPLAN (IMpnact Analysis for PLANning) was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency and the US Department of Interior Bureau of Land Management to assist the Forest Service in land and resource management planning. IMPLAN accounts closely follow the accounting conventions used in the *Input-Output Study of the U.S. Economy* by the Bureau of Economic Analysis (1980).

The IMPLAN database is created by MIG, Inc. Data consists of two major parts: (1) a national-level technology matrix and (2) estimates of sectoral activity for final demand, final payments, industry output, and employment for each county (or borough) in the U.S. along with state and national totals. Data is available for 1977, 1982, 1985, 1990, 1991, 1992, and 1994 for county level economic activity for 528 sectors.

THE ALASKA MULTI-REGIONAL INPUT-OUTPUT MODELING SYSTEM

Rationale & Introduction

Many questions regarding economic development and structural change in rural areas are best viewed within a larger regional economy that includes an urban region to which the rural region is economic related. A more complete understanding of the linkages between rural and urban economies would aid policy makers in addressing interrelated problems, such as declining economic opportunities in certain rural areas and losses of quality of life in urban areas. A better assessment of the impact of rural, natural resource-based sectors on the urban region would also provide assistance to decision makers.

In this context, a functional regional economy will typically consist of a central urban core and a surrounding, largely rural, periphery. Despite theoretical popularity, very few *core-periphery* models exist, generally due to empirical problems encountered in their construction. Recent advances--such as the IMPLAN formulation--have enhanced the ability to construct regional core-periphery input-output models.

For this study, an interregional core-periphery input-output model is constructed of the Alaska state economy. Model construction is based on information provided by three regional input-output models applied to the state of Alaska. One model is constructed for the Anchorage Mat-Su urban core region. A separate model is built for the rest of the state (the periphery), and the final model is an aggregate of the two regional models. An additional (aggregate) model of the Alaska economy is used to estimate the trade relationships and resulting interlinkages between the core and periphery economies.

A Brief Digression--Central Place Theory and Core-Periphery Analysis

Central place theory within regional economics suggests a definite ordering of communities within a region in terms of economic activities from villages and towns, where only the lowest order (e.g. basic retail services) economic activity exists, all the way up to primary cities, which are the main suppliers to the broader region of higher-order services, such as health facilities and financial services. The rapid growth of such services is an impetus to core expansion, in addition to that provided by the export-base industries.

An urban core surrounded by a peripheral, largely rural region is essentially an extension of this central place construct. Within a core-periphery framework, the surrounding rural periphery is largely dependent on the central place for its supply of higher-order goods and services. On the other hand, many periphery regions specialize in the production of natural resource-based commodities in which they have a comparative advantage. Trade in such goods may flow from the periphery to the core or to other domestic and international markets. For example, crude petroleum may be shipped from a periphery to its urban core for further refining or exported out of the region entirely.

The Alaska Core-Periphery

The Alaska economy is dominated in a central place context by the Anchorage metropolitan area. Other less important central places in the state are Fairbanks and Juneau. The Municipality of Anchorage and Matanuska-Susitna (Mat-Su) Borough comprise the urban core of the Alaska economy. The periphery is identified as the rest of Alaska. The state boundaries of Alaska, for the most part, are reasonable estimates of the periphery's boundary, given the pattern of central place dominance characterizing the Alaska economy.

Empirical Procedures

The IMPLAN modeling system is used to construct a model of the Alaska state economy and models of the Anchorage/Mat-Su urban core and of the periphery subregion. Estimates from the three models are used to derive trade flows between the two sub-state regional models and between the region and the rest of the nation for the 155 commodities produced in the state.

Estimates of regional supply and demand as measured by IMPLAN for 1996 are used in obtaining estimates of excess commodity supply and demand for core and periphery regions. One approach used for estimating regional exports and imports for a given commodity is the supply-demand pool (SDP) method. For any given commodity, supply--minus local consumption and foreign consumption (excess supply)--is assumed to be a regional domestic export. In the case of excess demand, imports from foreign or other domestic sources are assumed to fill the gap between the local supply and local demand.

Equations [1] -- [6] show trade relationships for the three-region approach. The system of simultaneous equations represents trade flows between the core, the periphery, and the rest of the United States and between the aggregate Alaska economy and the rest of the United States:

$$\begin{aligned}
E_{ak} &= X_{cu} + X_{pu} \\
E_c &= X_{cu} + X_{cp} \\
E_p &= X_{pu} + X_{pc} \\
I_{ak} &= X_{up} + X_{uc} \\
I_c &= X_{pc} + X_{uc} \\
I_p &= X_{cp} + X_{up}
\end{aligned}$$

Equations [1]--[6]

where E_{ak} represents domestic exports to, and I_{ak} represents domestic imports from, the rest of the U.S. for the Alaska economy; E_c and I_c represent domestic exports and domestic imports for the core economy; and E_p and I_p represent domestic exports and domestic imports for the periphery economy. For shipments X_{ij} , the i th subscript represents the shipping region while the j th subscript the receiving region (e.g., X_{cu} represents shipments from the core economy to the rest of the U.S.). The variables on the left side (estimated by the regional models) are useful in solving for the unknown shipments between the regions (the X_{ij} , variables.).

The six equations above fail to yield unique estimates of the trade-flow variables if there are nonzero trade flows between all regions. However, the equations can be manipulated to derive consistent estimates of total trade between the two subregions from both the import and export side. For example, from the import side:

$$\begin{aligned}
T_{pc} &= I_c + I_p - I_{ak} \\
T_{pc} &= (X_{uc} + X_{pc}) + (X_{up} + X_{cp}) - (X_{up} + X_{uc}) \\
T_{pc} &= X_{pc} + X_{cp}
\end{aligned}$$

Equation [7]

where T_{pc} is total trade between the two Alaska subregions.

The system of equations [1] through [7] can be employed to estimate trade flows between the three regions under certain conditions where knowledge of any one of the specific trade flows (X_{ij}) that appear in the equations will solve the system.

Model Closure

A more thorough picture of the economic linkages in Alaska between the core and the periphery economies is found by treating household spending as endogenous. Issues of closing (i.e., endogenizing) input-output models with respect to households hinge on the linkage between payments by regional firms to households, as owners of factors of production, and the resulting household consumption of goods and services. Model closure is accomplished by making household consumption a function of earnings (employee compensation plus proprietary income).

Impact Analysis

Relationships between the core and periphery economy can be determined by tracing the effect of a change in economic activity for an important sector in one region on economic activity in the other region.

Appendix II

Analytical Approaches to Regional Economies

Regional economic theory suggests a definite ordering of communities within a region by type of economic activity, ranging from villages and towns where only the lowest-order activities exist, up to the largest primary cities that are the principal suppliers of higher-order goods and services to the broader region.

Core-periphery analysis is a logical extension of this regional economic construct. It portrays an urban core surrounded by a peripheral, mostly rural region which is largely dependent on the primary city for its supply of higher-order goods and specialized business and professional services. In turn, many places on the periphery specialize in the production of natural resource-based commodities in which they have a comparative advantage.

The origin of an urban core is often one of historical accident where the core gains an early advantage in the production of manufactured commodities or as a distribution center for domestic and international markets. Economies of scale accentuate this ascendance, and workers attracted to the core serve as markets for local production of other goods and services. Once such a critical mass is reached, a cumulative process of growth may ensue in the core, often at the expense of the periphery.

Previous research (Krugman, 1991) asserts that the interaction of growing consumer demand and increasing returns in the production of manufactured goods and in transportation systems drives a cumulative process that may result in a core-periphery economy.

Growth-pole analysis is another related approach. In it, dynamic economic growth in an urban center influences economic activity in the surrounding periphery. Such a growth pole is likely to be a primary city supplying higher-order goods and services to the periphery. Within this framework, "nodal response" is the term for economic growth in the core based on increasing demand by a growing periphery economy for products supplied primarily by the urban core. Such a response implies a relatively fixed pattern of trade between the core and periphery economies.

Through these trade relationships, growth in the core region influences activity in the periphery in two ways: positive "spread" effects and negative "backwash" effects. Spread effects include the diffusion of investment, innovation and growth-oriented policies from the core to the periphery. For example, linkages develop between sectors of the core economy and those industries (often resource-based) that function as their input suppliers on the periphery.

By contrast, backwash effects are unfavorable impacts of core economic growth on periphery development. Some backwash effects are the result of the migration of labor and financial capital from the periphery to the core, causing depopulation and financial capital shortages on the periphery. Core service sectors such as advanced and complex legal and health services may also draw an increased share of total regional business, thus displacing their counterparts on the periphery.

In a similar analysis (Friedman, 1973), the periphery tends to be dominated by the core in terms of emerging technology and culture as well as higher-order services. In such cases of economic dependency, the form of economic control will be ownership of the natural resource and capital base in the periphery economy.

Combining these perspectives suggests that to better understand the forces of economic change in rural Alaska, the periphery should be viewed in relation to the urban core of Anchorage. Both rural Alaska and Anchorage will be affected by the strength of the economic linkages between them. The sensitivity of the core economy to the health of the periphery is a particular focus of this study, as is the extent to which the periphery might be expected to benefit from high rates of growth in the urban core.

Appendix III

Alaska Gross State Product

The current version of the Alaska economic impact model provides estimates of gross state product. In 1996, Alaska's total gross state product was estimated to be \$24.18 billion. Gross state product are the broadest measure of economic activity on a state basis (analogous to the nation's gross domestic product) and roughly includes wages and salaries, proprietors' income, other property income, and indirect business taxes. Table 27 shows Alaska's gross state product according to the two principal regions of analysis: the core region of Anchorage/Mat-Su; and the rest of Alaska periphery region.

Table 27.
Alaska Gross State Product by Major Industry, 1996 (in millions \$)

<i>Sector</i>	<i>Alaska Statewide</i>	<i>Anchorage/ Mat-Su</i>	<i>Rest of Alaska</i>
Agriculture	49.0	33.2	15.8
Forestry	35.5	7.7	27.8
Fishing	303.9	8.0	296.2
Oil & gas	3,231.2	1,308.0	1,923.4
Other mining	366.2	28.4	338.0
Construction	2,285.4	812.7	1,473.1
Manufacturing, total	1,374.7	215.7	1,159.5
Seafood processing	562.3	11.2	551.5
Other manufacturing	812.4	204.5	608.0
Transport & public utilities	3,575.6	1,710.7	1,864.7
Wholesale trade	686.7	503.0	183.5
Retail trade	1,908.0	1,068.1	839.7
Finance, insurance & real estate	3,843.4	2,433.1	1,410.1
Services	2,534.1	1,464.0	1,069.6
Government, total	3,982.8	1,838.1	2,144.8
Federal, civilian	901.1	521.9	379.0
Federal, military	559.1	307.1	251.9
State & local	2,522.6	1,009.1	1,513.9
Total	24,176.6	11,430.6	12,746.0

Gross state product generated in the rest of Alaska periphery region is slightly more than the Anchorage/Mat-Su core region. Natural resource based industries dominate the periphery region contributing one-fourth of the gross regional product. In contrast, the urban Anchorage/Mat-Su core region is dominated by the trade and services sectors; combined these sectors contribute nearly two-thirds of the gross regional product.